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ABSTRACT

Speakers at the Lipman Research Institute's inaugural symposium examined research and issues related to appropriate programs for 4-year-olds. David Weikart described the Perry Preschool Project, an ongoing study begun in 1962 of 123 black youths at risk of failing, and the High/Scope Preschool Curriculum Study. Jane Stallings covered short-term and long-term effects of the Direct Instruction Follow Through model. Shirley Moore's discussion covered child/caregiver attachment during the first 12 through 18 months of life, and the development of prosocial behavior and social responsibility from the period of 2 years to 7 or 8 years. Three areas in cognitive development during preschool years were described by James Johnson, who suggested implications for teaching practice and social policy. Sally Provence presented a pediatrician's view of schooling and assessment of 4-year-olds. Concerned particularly with the interests of black youth, Evelyn Moore discussed the motivation of the movement to enter 4-year-olds in public schools and called attention to unanswered questions about public school prekindergarten. Herbert Zimiles closed the symposium by reassessing the values and goals of research and describing ways to improve the effectiveness of research in early childhood education. (RH)

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Barbara K. Lipman Early Childhood Research Institute Symposium

THE LIPMAN PAPERS

Rosestelle B. Woolner, Editor

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Barbara K. Lipman
Early Childhood Research Institute
Symposium

APPROPRIATE PROGRAMS FOR FOUR-YEAR-OLDS

Rosestelle B. Woolner, Editor

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THE LIPMAN PAPERS

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Preface

This volume contains the text of the seven presentations given at the first Barbara K. Lipman Research Institute Symposium. The Symposium was sponsored by Memphis State University, College of Education, Memphis,Tennessee. APPROPRIATE PROGRAMS FOR FOUR-YEAR-OLDS was the theme of the inaugural symposium.

The Lipman Research Symposium attracted participants and speakers from 15 states. Out-of-staters represented 57.1% of the participants which included college professors, state and public school curriculum directors, day care directors, infant and parent educators, a professional journal editor, early childhood teachers, research directors, graduate students, and state education department personnel.

I wish to express my gratitude to those who were supportive and helpful in making the Symposium a reality. The Lipman family receives special praise for its recognition fo the significance of early childhood education and the research needs of the field. Likewise, without the continuous support of Dr. Robert L. Saunders, Dean,College of Education, Memphis State University, the Research Institute would still be an idea yet to become a reality.

I am grateful to the Lipman National Advisory Board members -- Shirley Moore, Evelyn Moore, Lilian Katz, Craig Raimey and Sally Provence -- for their support and recommendations in planning the Symposium and in the development of Barbara K. Lipman Research Institute. To Dixie Crase, Robert Cohen, Anne Troutman, George Etheridge, Alan Kamhi, Barbara Burch, Nancy Hardy, and Jaye Harvey-Yoder, the University Advisory Committee members, I am grateful and acknowledge their guidance and contributions. I owe a special thanks to Gordon Sutherland and Kathleen Mainardi, Department of Curriculum and Instruction graduate assistants, for their attentiveness to the details of arranging and organizing the Symposium. To all who contributed to the success of the Barbara K. Lipman Research Institute Symposium, I am most appreciative.

Rosestelle B. Woolner, Director and Editor
Lipman Research Institute
June, 1987

Introduction

The Barbara K. Lipman Early Childhood School and Research Institute was established in 1985 through a gift from Ira A. Lipman in honor of his wife, Barbara K. Lipman. The major purpose of the Lipman donation was to promote research in the field of early childhood education. The Lipmans feel that some of the answers to the problems in urban areas such as Memphis, Tennessee, can be solved if a concerted effort is made to conduct, assemble, and disseminate early childhood research related to current issues in the education of young children, especially minority children.

After considering and reviewing the current issues in early childhood education, the Barbara K. Lipman Early Childhood Research Institute advisory committees (national and university) decided that the public school's involvement in the education of four-year-olds was a crucial issue and deserved exploration. Consequently, the theme of the Lipman Research Institute's first symposium was APPROPRIATE PROGRAMS FOR FOUR-YEAR-OLDS.

What constitutes appropriate program for young children is one of the major issues in early childhood education today. The debate, although not a new one, was reopened when public schools indicated their recent interest in providing programs for four-year-olds. Advocates of public school education for fours believe that such programs would improve the inner-city children's achievement in kindergarten and elementary school and that they are in the best position to provide a quality early childhood program for four-year-olds. Opponents of public education for four-year-olds are concerned that public schools are unwilling or unable to provide developmentally appropriate programs for young children; that the curriculum will concentrate on achievement of academic skills rather than on the total development of the young child.

The debate between the advocates and opponents of public school education for fours focuses primarily on what is an appropriate curriculum content and which instructional strategies are appropriate in nursery school and kindergarten. At what age should young children be introduced to formal academic subjects such as reading and math? When should children learn numbers, phonics, addition, etc.? Which instructional strategy is most effective with young children -- the direct-teaching method, the process, or the interactive method? Which curriculum and instructional method, in the long term, will be most effective? Should the curriculum emphasize academics or intellectual development? Should the curriculum narrowly focus on developing young children's basic skills or should it be broadly focused on the total development (social, physical, emotional, and intellectual) of children?

The public schools' interest in providing programs for four-year-olds brings other issues into the debate. What are school officials' and legislators' motives: children or achievement scores? Do public school teachers have the educational background and experience to teach young children? Are public school administrators and legislators wanting to "push" the elementary curriculum and instructional strategies downward on young children? Will states demand teachers of four-year-olds to have special training or endorsement or certification?

No doubt there is research to support any position regardless of what that position is. Yet, research findings gather dust from the lack of interpretations written so parents, teachers, politicians, school administrators, and others can understand the research jargon and subsequently arrive at their own conclusions. More often than not, some publics demand 100% positive results with all children before they consider a curriculum and/or teaching method worthwhile implementing.

Each Symposium speaker presented a different perception on the issue by examining specific research and issues related to appropriate programs for young children. Two speakers considered the instruction issue: David Weikart presented the interactive instructional model and Jane Stallings reviewed the longitudinal finding on the direct teaching model. Child development issues were considered by three speakers: Shirley Moore presented two theories of social and emotional development, James Johnson summarized the cognitive development research, and Sally Provence presented a pediatrician's view of schooling for four-year-olds. Evelyn Moore discussed the motivation and outcomes of the movement to

have four-year-olds in public schools and called attention to important unanswered questions. Herbert Zimiles closed the Symposium by focusing on the role research can play in examining the trend toward earlier education.

The first Barbara K. Lipman Research Institute Symposium, APPROPRIATE PROGRAMS FOR FOUR-YEAR-OLDS, was a success. Speakers challenged participants to explore the issues related to appropriate programs for four-year-olds from different perspectives while participants' thoughtful and insightful questions and comments challenged the speakers to expand their positions and topics. The interaction between and among the speakers and participants made the Symposium a stimulating, meaningful experience for everyone.

The pages that follow present the text of each presentation. They are thoughtful, analytical, insightful and provocative. Studying the text of each presentation will, hopefully, clarify the issues, focus on possible solutions, and suggest important questions in America's search for APPROPRIATE PROGRAMS FOR FOUR-YEAR-OLDS.

Rosestelle B. Woolner, Director and Editor
Lipman Research Institute
June, 1987

Research and Related Issues: Interactive Instructional Model

David P. Weikart
High/Scope Educational Research Foundation

This presentation describes the Perry Preschool Project which is an ongoing study that began in 1962 of 123 black youths who were at risk of failing in school. The study explored the long-term effects on these young people of participation versus non-participation in a program of high quality Early Childhood Education.

The Role of Intervention on Intellectual and Social Development of Children

The available evidence suggests part of any solution to the prevention of major social and personal problems in adults is to provide high quality preschool child development programs to them when they are young. This idea for prevention first became popular among leading educators and social scientists in the 1960's and led to the establishment of National Head Start. It also led to a variety of experimental programs and, in accord with the spirit of the times, to a limited number of scientific evaluations of the effectiveness of these programs. Despite some early findings (Westinghouse Learning Corporation, 1969) and some recent echoes (McKey, Condelli, Ganson, Barrett, McConkey, & Plantz, 1985) that cast doubt on the overall efficacy of the National Head Start program, the findings of carefully drawn studies of preschool child development programs suggest a possible pattern of causes and effects that stretches from early childhood into adulthood (Berreuta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984).

Poor children are likely to perform poor as they enter school because they have not developed to the same extent as their middle-class peers the skills, habits, and attitudes expected of children in kindergarten and first grade; this lack of development is manifested in low scores on tests of intellectual or scholastic ability. Children who have not developed in this way may be developmentally advanced in other respects not relevant to school success. Their lack of preparedness for school, however, can lead to unnecessary (that is, preventable) placement in special education or retention in grade, low scholastic achievement, and eventually dropping out of high school. Poor children who attend good preschool child development programs become better prepared in skills, habits, and attitudes expected of them in kindergarten and first grade. Thus, they begin a more successful career in school and into adult life. Perhaps the best known of these early intervention programs is High/Scope Foundation's Ypsilanti Perry Preschool Project (Berrueta-Clement, et al., 1984).

Ypsilanti Perry Preschool Project

The Perry Preschool Project is an ongoing study begun in 1962 of 123 black youths, from families of low socioeconomic status, who were at risk of failing in school. The purpose of the study is to explore the long-term effects on these young people of participation versus non-participation in a program of high quality early childhood education. Drawn from a single school attendance area at ages 3 and 4, these youngsters were randomly divided into an experimental group that received a high quality preschool program and a control group that received no preschool program. Information about these youngsters on hundreds of variables has been collected and examined annually from ages 3 to 11, and again at ages 14, 15, 19, and now at age 28 -- assessing family demographics; child abilities and scholastic accomplishments; and involvement in delinquent and criminal behavior, use of welfare assistance, and employment.

Curriculum

The Perry Preschool Project used the High/Scope Curriculum ((Hohmann, Banet, & Weikart, 1979) and it will serve as an example of the content of an early education program. Organized about Piagetian ideas, the fundamental premise of the curriculum is that children are active learners and construct their own knowledge from activities they plan and carry out themselves. This concept of active learning revolves around everything done in the curriculum from teacher training to parent involvement. Such an approach

implies a consistent daily routine because the children have to be able to institute the plans and ideas that they have. This adherence to routine gives the children control of their time necessary to develop a sense of responsibility and to enjoy the opportunity to be independent. In the High/Scope Curriculum the daily routine is a plan-do-review sequence that incorporates clean-up time and small and large group activities. This cycle permits children to make choices about their activities and keeps the teachers involved in the whole process. Planning gives children a consistent opportunity to express their ideas to adults and to see themselves as individuals who can make and act on decisions. Children experience the power of independence and the joy of working with attentive adults and peers.

The "do" part of the plan-do-review sequence occurs after the child has finished planning. Since children are responsible for executing their plans, adults do not lead work-time activities. The adult's role during work time is to observe how children gather information, interact with peers, and solve problems, and, second, to enter into the child's activities to encourage and set up problem-solving situations.

The final phase of the plan-do-review cycle gives children an opportunity to represent their work time experiences in a variety of developmentally appropriate ways. They can draw pictures or make models of what they did, review their plan or verbally describe the activities that were undertaken.

From the teacher's point of view, the High/Scope Curriculum is organized around key experiences which provide a framework that guides adults in conducting the classroom program. With a focus on key experience, teachers are freed from the standard lesson sequences or activity charts.

Results

The long-term study of these 123 youngsters, following them from program entry at age 3 to young adulthood at age 19, has provided important information on the impact of early education on future growth. On the whole, early childhood education significantly alters the child's performance in later life.

Results to age 19, comparing those who attended preschool and those who did not, can be summarized as follows:

In education --

Fewer classified as mentally retarded (15% vs. 35%)
More completed high school (67% vs. 49%)
More attended college or job training programs (38% vs. 21%)

In the world of work --

More hold jobs (50% vs. 32%)
More support themselves by their own, or spouse's, earnings (45% vs. 25%)
More are satisfied with work (42% vs. 26%)

In the community --

Fewer arrested for criminal acts (31% vs. 51%)
Lower birth rate (64 vs. 117 per 100 women)
Fewer on public assistance (18% vs. 32%)

Economic Outcomes

The cost-benefit analysis of the Perry Preschool program indicates that such programs can be a good investment for taxpayers. On the basis of a careful analysis of 15 years of follow-up data, this program showed a very positive value to taxpayers (Berrueta-Clement, et al. 1984, and Barnett, 1984).

The major cost of the program (in constant 1981 dollars, discounted at 3 percent annually) is the initial investment of about $5,000 per participant per program year. (It is important to note that this cost

figure includes items of school operation that are usually overlooked such as buildir g depreciation, clothing, volunteers, etc.) Major benefits found for the taxpayers were reduced costs per participant of about $5,000 for special education programs, $3,000 for crime, and $16,000 for welfare assistance. Additional post-secondary education costs by participants added about $1,000 to costs. Participants were expected to pay $5,000 more in taxes because of increased lifetime earnings (predicted from their improved educational attainment).

Thus, total benefits to taxpayers amount to about $28,000 per participant, which is nearly six times the initial cost of the one-year program, or three times the cost of the two-year program. The return is large enough that even a two-year program that was only half as effective as the program studied would still yield a positive return on investment. The savings from reduced costs for special education alone are enough to return to taxpayers an amount equivalent to the cost of a one-year program.

Quality in Early Childhood Education

The research findings cited above are not an endorsement of all early childhood programs. There is no intrinsic value in a young child's leaving home for a few hours a day to join another adult and a group of children. Program quality must be carefully defined and maintained or a preschool classroom or child care center is just another place for a child to be. The effects of preschool programs have been found for high quality child development programs only.

High quality programs is a dynamic concept. It is not a matter of teaching degrees or even financial or material resources, but the continued focus on the use of staff skills implementation that produces the results.

It was this issue of defining quality that the High/Scope Preschool Curriculum Study addressed (Schweinhart, Weikart, & Larner, 1986). In short, is one curriculum approach more effective than another?

The High/Scope Preschool Curriculum Study

The ongoing High/Scope Preschool Curriculum Study began in the public schools of Ypsilanti, Michigan in 1967. It served children three and four years old who lived in families of low socioeconomic status and who, according to test scores, were at risk of failing in school. The children were assigned to one of three curriculum models by a random-assignment procedure designed to ensure the comparability of the groups. The curriculum models all operated under similar administrative conditions and adhered to high standards of quality: a clearly articulated curriculum, ongoing training and supervision of staff, highly trained teachers, low teacher-pupil ratios, extensive parent involvement, adequate resources, and so on.

The curriculum models used in the project represented three major theoretically distinct approaches to preschool programs. They differed with respect to the degree of initiative expected of the child and the teacher--whether the child's and the teacher's primary roles were to initiate or respond.

The programmed-learning approach, in which the teacher initiates activities and the child responds to them, was represented by the direct-instruction preschool program developed by Bereiter and Engelmann (1966) and later published as Distar. In this approach, classroom activities are clearly defined academic skills with forceful positive child management procedures.

The open-framework approach, in which teacher and child both plan and initiate activities and actively work together, was represented by the High/Scope Curriculum (Hohmann, et al., 1979). Developed in the Perry Preschool Project, classroom activities revolve around key experiences intended to promote intellectual and social development. The underlying psychological theory is cognitive-developmental, as exemplified in the work of Jean Piaget.

The child-centered approach, in which the child initiates and teacher responds, was represented by a nursery school program that incorporated the elements of what has historically constituted good nursery school practice. In this approach, classroom activities are the teacher's responses to the child's expressed needs and interests, and the teacher encourages children to actively engage in free play.

Of the sixty-eight youngsters in the program, fifty-four were interviewed at age fifteen -- a retention rate of 79 percent. Previous data collections from ages three to ten, which took place either in the preschool program or in the school, had retention rates of 90 percent or better. Comparison of these characteristics of the remaining sample at age fifteen to the original sample characteristics indicates that the age-fifteen sample was virtually equivalent to the original sample in every respect.

On self-report ratings of social behaviors, there were clear-cut and significant differences between the Distar group on one hand and the High/Scope and nursery school groups on the other. The average member of the Distar group at age fifteen engaged in thirteen self-reported delinquent acts (girls, fourteen; boys, twelve), the average nursery school group member engaged in seven (girls, seven; boys, seven), and the average High/Scope member engaged in five (girls, four; boys, eight). On all but one item of the eighteen-item scale, the Distar group reported the highest frequency, or was tied for the highest frequency, of the three groups. On the delinquency scale, then, the Distar group reported a highly significant rate of juvenile delinquency when compared to the other two groups.

Curriculum groups at age fifteen did not yet manifest statistically significant differences in official contact with the police. Regardless of curriculum group, half the members of the sample reported having been picked up or arrested by police by age fifteen; the average sample member reported contact with the police 5 times, while average self-reported delinquency acts for the total sample was 8. In the Perry Project, police arrests "caught up" with self-reported delinquency by age nineteen.

Curriculum group members a: age fifteen reported on family relations, activities, school behavior and attitudes, and mental health. Corroborating the juvenile delinquency reports of the Distar group, the few group differences found in these areas suggest greater problems experienced by the Distar group as compared to the other two curriculum groups. For example, one out of three members of the Distar groups said their families felt they were doing poorly, a response made by only one out of thirty-six members of the other two curriculum groups combined.

To summarize the group differences among the children at age fifteen, then, more of the Distar group members reported they were not socially well adjusted, compared to both the High/Scope and the nursery school groups. Clearly, these data from this longitudinal, small sample study suggest that there are social consequences to curriculum choice.

It is poor public investment policy to finance preschool programs at per-child levels insufficient to provide high quality programs. With limited funds, it is probably better to provide high quality programs to some children than to provide inferior programs to a larger number of children. This has been the constant dilemma of the National Head Start project, which now serves only one in five eligible children. But if quality is sacrificed in order to serve more children, the value of the program for all the children may be seriously undermined.

If a preschool program is to promote child development intellectually, socially, and physically, it must be conducted to meet high standards of quality by competent child development professionals who establish a non-directive environment that supports active learning by the child. To meet this criterion, a child development program should have the following characteristics of staffing, curriculum and child and family services:

- a non-directive curriculum model, derived from principles of child development, that has been evaluated and found to have positive intellectual and social outcomes

- two adults from each classroom group and a classroom enrollment limit of no more than 20 children

- teaching staff who are early childhood specialists, with bachelors' degrees in early childhood development; child development associate credentials (usually a two-year degree), or equivalent; or staff intensely supervised by an experienced curriculum specialist

- support systems to maintain the curriculum model, including curriculum leadership administration, curriculum-specific inservice training, supervision and evaluation procedures, and teaching staff assignments that permit daily team planning and evaluation of program activities

- collaboration between teaching staff and parents as partners in the education and development of children, including frequent communication and substantive conferences

- sensitivity and responsiveness to the child's health and nutrition needs and family needs for child care or other services

With the enthusiasm of the newly converted, state governments and cities have rushed to use the power of early education to reduce social problems (see the booklet titled Preventing Unemployment: A Case for Early Childhood Education from the Mayor's office in Minneapolis to see the extent of their thinking). Business has also become committed (see the two publications of the Committee for Economic Development, Investing in our Children (1985) and Children in Need (1987), to guage the extent). The field of early childhood education, however, must help the public understand that high quality programs are not only expensive but that they are only part of the solution. Alone, such services will not solve social problems of teen pregnancy, unemployment, etc. High quality early childhood education has something of great value to offer: methods that work. It is a major service to children, their families, and society that we can offer.

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Longitudinal Findings for Early Childhood Programs: Focus on Direct Instruction

Jane Stalling
University of Houston

This paper describes short-term and long-term effects of the Direct Instruction Head Start and follow through model which is based upon Skinner's Theory of Operant Conditioning. Operant Conditioning is a term of learning in which a designated behavioral act is reinforced in order to bring about its regular occurrence.

There are many points of view regarding what children should learn in school and how they should learn it. Throughout the history of American education, the pendulum has continually swung from classical education to experiential education to basic education. Events in our culture have often guided the educational trends (e.g., Sputnick led to increased focus on math and science). The Civil Rights legislation gave birth to the Head Start (HS) and Follow Through (FT) programs, whose intent was to improve the life chances of economically deprived children. These broad-based experiments allowed educational researchers to test ideas regarding the effects of teaching strategies upon child learning.

The educational programs funded through Planned Variation Head Start and Follow Through included models based upon the theoretical ideas of philosophers and psychologists such as Piaget, Dewey, Levin and Skinner. Each sponsor who developed and proposed an educational model for funding believed that their program would enhance the school success of economically deprived children. Their designs included specific classroom materials to be used, arrangements of activity centers, grouping arrangements of teachers and classroom aids, and interaction patterns of teachers and children.

Each sponsor had specific goals for the children's growth and development. Some sponsors sought a balance between the development of socio-emotional skills, physical skills and cognitive skills. These sponsors were more likely to provide programs which included the use of manipulative materials and interactions that lead to intrinsic rewards. These theorists believe children to be the initiators of action. Other sponsors focused more singularly on developing basic skills in reading and mathematics. They believe that children respond to stimuli in the environment and learn best when this is carefully regulated by the teacher. Their expectation is that children's self-esteem develops as they feel competent in school subjects. These differences in belief regarding how children grow and develop have existed throughout educational history.

The purpose of this paper is to describe short-term and long-term effects of the Direct Instruction Head Start and Follow Through model, which is based upon Skinner's theory.

Direct Instruction/Follow Through and Head Start

The Direct Instruction Follow Through model grew from the highly structured Bereiter-Engelmann (BE) preschool program. This academic preschool program was an anomaly when it was created by Bereiter and Engelmann (1966). The major objectives of the BE Direct Instruction program were to help children acquire basic skills in arithmetic, to develop effective use of language, and to master visual symbols and basic color concepts. Through academic achievements, the children were expected to increase their self-esteem and develop self-confidence. The program was developed especially for children from lower income homes who lacked language skills necessary for success in school. In Beller's words, "The academic preschool was designed as a crash program of language remediation to help four- and five-year-old lower income children catch up to middle-class children" (1973).

Most other preschool programs in the 1960's and 1970's were developed to foster the cognitive, social, and emotional skills of children. In essence, they were responsive to the needs of the whole child. In sharp contrast, the academic preschool model specified exactly what children needed to succeed academically in school and dictated how teachers should modify children's behavior. This model stood out in the crowd of

preschool models: cheered by behavioral psychologists, jeered by cognitive developmentalists. The latter group felt it unwise or even criminal to subject young children to narrowly focused academic activities.

Behavior modification models grew out of the learning theories of Pavlov (1927) and Skinner (1968). These theorists submit that any healthy animal or person can be taught to perform tasks successfully if the unit of learning is small enough and if the reinforcement offered is desired by the subject. The Academic Preschool Program's curriculum and practice were based upon Skinner's operant conditioning theory. Operant conditioning is a form of learning in which a designated behavioral act is reinforced in order to bring about its regular occurrence. In operant conditioning, the response or behavior operates upon the environment to generate consequences. The consequences are contingent upon the emission of a response. If the response is acceptable, the consequence is pleasant and the response is reinforced. A simple example is a mother asking a child to put napkins on the table (stimulus); the child does (response); the mother says, "Thank you. You are a big girl to help mother," thus reinforcing the child's helping behavior.

In comparing the cognitive developmentalists and the behavior modifiers, Maccoby and Zellner (1970) had the following to say:

> The cognitive developmentalist, following the Piagetian theory, believes that the process of education is one of building cognitive structures in the mind of the child. The behavior modifier is not to say that he does not know what cognitive structures are -- that he believes these are fiction, myths, invented by psychologists, that serve more to hinder than to help his understanding of how the child learns. The behavior modifier conceives of education as a process of producing changes in observable behavior. Usually the changes take the form of adding new responses to the child's repertoire -- like filling up an empty jar with marbles, adding one marble at a time....Reinforcement is the mechanism that produces this result. The behaviorist does not, of course, believe that nothing goes on inside the head -- only that it is not profitable to speculate about these internal processes, since they cannot be directly observed or controlled. The only thing we can control is what we observe, and all we can observe is behavior. (p. 34)

Early reports for the Academic Preschool Program of Bereiter and Engelmann indicated that after two years in the academic preschool, children made greater gains on the Stanford-Binet and the Wide Range Achievement Test than children of comparison groups who had not received such intensive academic training. Upon entering the first grade, the experimental children achieved at nearly the second-grade level in reading, arithmetic, and spelling. As with other preschool programs, the success of the children was short-lived. At the end of the first-grade year, there was little academic difference between treatment and control children (Beller, 1973, p. 570).

Encouraged by their initial success with preschool children, Bereiter and Engelmann responded to the government's request for proposals to provide educational programs for kindergarten through third grade that would aid children to maintain the gains achieved in Head Start or other preschool programs. The Academic Preschool Program developed for the elementary school is now known as the Oregon Direct Instruction program. This program was awarded Follow Through Planned Variation funds and was subsequently implemented in twenty locations across the nation. In 1983, this Follow Through program could be found in sixty American cities and a number of foreign countries.

The Direct Instruction program is based upon the premise that positive reinforcement is essential to modifying student behavior and maximizing children's academic success. To implement the belief that children can be trained to succeed, a carefully sequenced curriculum and a rigidly controlled instructional process are required.

For all grade levels of children in their model, Carl Bereiter and Seigfried Engelmann created sets of curriculum for reading, spelling, language arts, and mathematics. The lessons were presented in small hierarchical steps. Teachers presented a bit of information; children repeated the information; teachers asked a simple direct question about the information; children responded. If the response was correct, the children

were praised. If the response was wrong, the teacher corrected children and the process was repeated until the children repeated the right answer automatically. Then and only then did they proceed to the next sequence. The drill and practice was kept at a rapid pace with systematic and enthusiastic praise for right answers.

The Follow Through program required curricular materials for kindergarten through third grade. Thus, materials were prepared for reading, spelling, language arts, mathematics, science, and music for each of these grade levels. Since Planned Variation Follow Through was a national model, the instructional process for using the curriculum had to be made essentially teacher proof. To accomplish this, a script was prepared for each lesson to be used by teachers and classroom aides in all parts of the country.

The Follow Through approach that evolved under the direction of Seigfried Engelmann and Wesley Becker required three adults trained in Direct Instruction methods in each classroom. For reading, math, and language development, children were grouped on the basis of their ability according to criterion tests given weekly. The classroom teacher was usually responsible for the reading program; a full-time aide was responsible for the math program; and a second full-time aide was responsible for spelling and handwriting. In order for the children to receive maximum amounts of stimulation and praise during a learning session, the teachers worked with eight to ten children at a time and addressed most questions and praise to the group. By addressing the group, the teacher was attempting to keep all participants totally engaged all of the time. The teacher might rapidly question individuals to see if they had learned each step, but primarily the teacher addressed the entire group.

Individual learning problems were diagnosed through weekly testing and each child then received the drill and practice necessary to learn required skills. In this model, the teachers were the directors. They initiated each stimulus and quickly reinforced or modified each response. They controlled the students, keeping them on task through continuing interactions and positive reinforcement. Students and teachers shared the pleasure and the excitement of correct responses. Observations conducted by Stallings and Kaskowitz (1974) found 90 percent of the Direct Instruction teachers in five urban and rural locations implementing the model as specified by the developers. These findings indicated that the educational model and the teacher training program were transportable to urban and rural sites.

Since its inception, the Direction Instruction Follow Through program has been reported to have a positive effect upon children's reading and mathematics achievement test scores (Abt Associates, 1977; Stebbins, St. Pierre, Proper, Anderson, & Cerva, 1977). Of the nine major Follow Through models evaluated, Direct Instruction ranked highest in reading and mathematics. In 1977, Becker reported the average scores for the students in the program corresponded to the 49th-50th percentile on the Math, Language, and Spelling subtests of the Metropolitan Achievement Test, and the 41st percentile in reading. Stallings, (1975) also found that first- and third-grade children in the Direct Instruction (DI) Model Scored higher in reading and math than children in the seven other Follow Through models in that study.

Other interesting findings, from a test which indicates who children feel are responsible for their achievement, revealed that third grade (DI) children more often than comparison children attributed their academic success to their teachers or other factors outside of themselves, and attributed their failures to themselves (Stallings, 1975). Another surprising finding was that the Direct Instruction third-grade children scored lower than children in cognitive developmental models on a test of non-verbal, problem-solving abilities (Ravens Progressive Matrices). The (DI) children who spent most of their time at school in rapid paced drill and practice activities or completing carefully sequenced worksheets had little opportunity to learn about relationships among items since they seldom used concrete manipulative materials. This lack of experience in taking things apart, putting them back together, learning relationships, and seeing how things fit together may have contributed to their low scores on the problem-solving test.

The primary question posed to all educational models is: What are the long-term effects? Will children who have learned through carefully sequenced lessons and teacher guidance during the initial stages be able to work and learn independently in classrooms that do not provide the support and consistency of the Follow Through program?

Several studies have examined the longitudinal effects of the Direct Instruction model. In these studies the researchers have tracked the original control and experimental children. Becker and Gersten (1982) found that fifth- and sixth-graders in five sites had scored higher than control children on the Wide Range

Achievement Test in reading decoding, math, and spelling. The authors note that the magnitude of the effects was appreciably lower than it had been in third grade. A quasi-experimental follow-up study by Meyer, Gersten, and Gutkin (1983) found that New York fifth graders who had experienced four years of Direct Instruction in kindergarten through third grade scored significantly higher than comparison students and were at ninth-grade level in reading and 8.6 grade level in math. Although the findings are not consistent across sites, there is evidence to indicate that Direct Instruction ninth-grade students are more likely to attend school and less likely to be retained than comparison students. It also appears that the students who experienced Direct Instruction were more likely to graduate. Of the twenty-three New York students who started the program in 1969, 57 percent graduated, compared to 35 percent of the twenty-nine comparison students; 4 percent had been retained, compared to 7 percent of the controls; 39 percent had applied to college, compared to 10 percent of the controls.

Clearly, the longitudinal findings regarding retention, attendance, and graduation have important implications for the cost effectiveness of the Direct Instruction model. While academic achievement is in itself important, it is likely that the DI students' success in school contributed significantly to their greater commitment toward schooling. This behavioral philosophy is based upon the idea that success reinforces success. Their goal is to have students succeed academically. They believe that if children's lessons allow them to succeed at a 90 percent rate, children will eventually expect to succeed, and they will!

Longitudinal Study Comparing Direct Instruction, Montessori and DARCEE

Another longitudinal study of early intervention programs that included findings regarding the Direct Instruction model was conducted by Miller and Bizzell (1984). They followed the progress of children who in 1968-1969 attended four different Head Start programs in Louisville, Kentucky. Ninth- and tenth-grade results are reported for children who participated for one year in Bereiter-Engelmann's Direct Instruction (BE), Susan Gray's DARCEE, Montessori, and traditional pre-kindergarten. A control group of children not attending Head Start was also recruited and included in the follow-up studies.

The experimental children, predominantly low-income and 90% black, were randomly assigned to the programs. Controls were recruited from neighborhoods in which the experimental classes were located. Fourteen classes were developed: four each for BE, DARCEE, and traditional; two for Montessori. At the end of the pre-kindergarten year, 214 experimental children were in the sample.

The Preschool Inventory (PSI) (Caldwell, 1968) was administered eight weeks after the children started preschool and at the end of the preschool year and at the end of kindergarten. California Achievement Test scores were obtained from the school systems at the end of lst and 2nd grades. Stanford Achievement Test scores were available for children in 4th through 8th grades, and scores from the Comprehensive Test of Basic Skills were available for children in 9th and 10th grades. The STEP-Locator, a brief test of language and math skills, was administered to the 9th and 10th graders by the research staff. Intelligence was measured with the Stanford-Binet (Terman & Merrill, 1960) at the beginning of the preschool experience and at the end of preschool, 1st, 2nd, and 8th grades. Beginning in spring, 1977, the Wechsler Intelligence Scale and the Stanford-Binet Intelligence Test were administered in alternate years by the research staff.

The results indicate that the academic and IQ trends established by the end of kindergarten persisted into the 9th and 10th- grade years. These figures show that only the Montessori boys were not lower in IQ at 10th grade then at the end of the pre-kindergarten. At the end of 10th grade, the Montessori boys were operating above national norms academically and were within the normal range of IQ. This was 15.3 points above the 10th-grade DARCEE boys who had started at the same IQ level as Montessori boys in preschool.

IQ scores for the Montessori girls increased at the end of preschool and then dropped off radically. The control girls and the DARCEE girls started the study eight to ten points higher academically than other girls and for the most part maintained this academic superiority throughout the study. Only at the 6th grade did the academic scores of BE, DARCEE and Montessori converge.

It is possible that these puzzling findings are due to chance. However, considering the original random assignment and considering that attrition has not been differential, the change factor is not a plausible

explanation. In fact, Miller and Bizzell (1984) report that, in the Montessori schools, attrition was in a direction that lowered the probability of positive outcomes (p. 23).

The Montessori Program

If the Montessori preschool program had a very positive effect upon young boys, what made the program effective for boys? To consider this question, let us examine the Montessori program.

Maria Montessori believed that the motivation to learn is present at the start of life and that appropriate activities or materials activate the motivation to learn. The fundamental task of education is setting the child free to learn from the environment. The educators' responsibility is to design and organize the environment so that children can learn through self-correcting materials and activities. With self-correcting materials, children learn from direct experience. Teachers' judgment of success is not needed. The materials provide the feedback to the children and set them free to do their own correcting and to set their own pace.

Montessori believed that sensory experiences were directly related to the development of the child's mind. Beller (1973) summarized this theory as follows:

> Intelligence is the ability to classify. Classification consists of analyzing an object and extracting a determined attribute therefrom. If this capacity for selecting single attributes is not acquired, associations by means of similarities, synthesis and all higher work of intelligence becomes impossible. (p. 562)

The highly structured curriculum Montessori developed was based upon the assumptions about knowledge acquisition described above.

The Montessori program is dependent upon specific materials developed over the past 70 years. These same materials are present in each Montessori classroom regardless of the geographical location or social status of the clientele. All preschools will have the same materials (e.g., the brown stairs and pink tower) which can only be assembled in one way. The child's task is to assemble the pieces in the single correct way.

During the Montessori training, teacher candidates learn to organize and present these materials in a specified sequence. They also learn how to present or demonstrate the materials to individuals or small groups of children. Children are expected to attend to instruction, to finish each task, and to put away their own materials.

Teachers in this model are encouraged to be supportive and facilitative: they should not develop emotional dependence in children. Their function is to be a director and monitor and to intervene as little as possible with the children. Task orientation is the focus of the relationship between children and teachers. Montessori thought that strong emotional ties were likely to interfere with task performance. Children are encouraged to control their emotionality and to become self-sufficient. With teachers modeling this behavior, mutual respect and helpfulness were expected to develop between teachers and students.

External rewards and punishments are discouraged. Montessori believed that children have an inner force that provides a stronger motivation than any extrinsic incentive. Each lesson or activity has a specific objective: the child's pleasure is derived from completing the task and meeting the objective. When children complete tasks, they inform the teacher, replace the materials, and receive a new lesson determined by the teacher. With minimal verbalization, the teacher states the objective of the new lesson. The children are not hurried through tasks or criticized for mistakes. The cornerstones of this model are to activate children's motivation to learn and to help them develop the self-discipline to complete tasks.

Although children are at liberty to complete each activity at their own pace, the sequence of the activities is strictly controlled by the teacher. The sequencing enables the child to first discriminate between items and to match sensory qualities such as size, color, or pitch. Next, qualities are ordered according to dimensions as tall to short, thick or thin. Eventually, the child is able to differentiate and integrate sensory

dimensions. In this approach to child learning, the teacher provides minimal verbal labeling and description. The child learns through direct sensory experience.

The curriculum is meant to provide exercises for all of the senses. Thus, it includes reading, writing, numeration, weights and measures, pottery, painting, music, cooking, role playing, construction blocks, gardening, and other practical life experiences appropriate for each age group (Stodolsky, 1972).

Given these curriculum materials and experiences, and the instructional processes employed by Montessori teachers, it seems clear that this program is oriented toward the development of sorting, matching, classification skills, fine motor coordination, self-assurance, task persistence, and independence, and not so much toward verbal or social development.

It is of considerable interest that a specific program would be more beneficial to boys than to girls. Overall, the girls in the study had higher achievement levels than the boys except in the Montessori program. The most plausible explanation may be found in some component of the Montessori program which is particularly beneficial for disadvantaged four-year-old boys. Something within the structure sequencing of the self-correcting Montessori materials may have allowed the boys to develop discrimination, classification, and focusing skills. Such skills are required for taking tests and performing well in school. Perhaps the spatial qualities of the materials were more helpful to the boys than to the girls. Boys are typically less mature than girls at age four, and it may be they were more susceptible to the effects of this individually paced, structured program than were the girls. That is, their cognitive structures were more pliable and were more influenced by their experiences than were the girls. Perhaps there are teachable moments when children are more likely to learn through the sensory experiences that Montessori believed were so closely related to the development of the child's mind.

The DARCEE Program

In the DARCEE program, the girls tested approximately at grade level in the 9th and the 10th grades, but the boys were achieving at the 6th-grade level. Was there something in the DARCEE program that was better for girls than for boys?

The program, developed by Susan Gray at Peabody College, was based upon the premise that to succeed in school children need to develop basic concepts such as color, shape, size, and sequence. In addition, the program focused upon language development since the low-income children the program served had limited school vocabularies. School achievement was also thought to depend upon children's motivation achieved in school.

The 31 children in the program attended a daycare center five days a week during the school year. The instruction provided to the 31 children in DARCEE was observed to have a greater amount of verbal instruction than other programs. Visual and manipulative materials were used, but usually in a group format. Part of the purpose of these activities was to help children learn to take turns using materials rather than learning at an individual, exploratory pace. The time spent observing other children use the materials was likely to be as great as the time each child spent using the materials (Miller & Bizzell, 1983a, p. 26). This is quite a contrast from the Montessori program, which provided for more individual manipulation of materials and less verbal interaction than other programs.

Since girls are known to mature faster than boys during the preschool years, Miller and Bizzell hypothesized that "between the ages of four and five when this sample entered pre-kindergarten the little girls were more ready to process information gained through observation and verbal instruction, particularly in the group setting, while the little boys needed more kinesthetic methods of instruction and/or more hands-on manipulation of materials in the learning of specific concepts" (p. 25).

This is a rational hypothesis, but it does not explain why the DARCEE and control girls had such similar test scores. The control girls, who did not participate in a preschool program, started with slightly higher achievement test scores, but DARCEE girls started with slightly higher IQ scores. At the 8th, 9th and 10th grade, the control and DARCEE girls were similar to each other and considerably higher than girls from the other three programs. Unless there is something special in the control children's home and grade

school experiences, this finding indicates that for girls, the preschool experience had little positive academic effect in subsequent years.

The Bereiter-Engelmann (BE) Direct Instruction Program

The 37 children in the BE sample started preschool at approximately the same IQ level as children in the other programs, but the girls' IQ scores dropped 10 points by the end of 10th grade. Montessori girls' IQ scores dropped a similar amount. The BE boys' scores also dropped, but not so much as the girls.

The BE boys' achievement test scores hovered slightly above the 50th percentile, and the BE girls' achievement test scores were slightly below that point, but at preschool and at 10th grade. The boys' scores dropped dramatically at lst grade but rose to slightly above the 50th percentile by 10th grade. At 10th grade, the BE boys tested higher than did DARCEE, traditional, and control boys, but the DARCEE and control girls scored higher than the BE girls.

Actually, these BE children held their own in school, but progressed very little beyond their entry point. It may be that this didactic preschool program, which required one teacher and at least two classroom aides constantly focusing the children's attention on fast-paced drill and practice activities, was not productive in the long run. When the children entered school and did not receive this type of tight structured program, girls in particular did not function well in the traditional classrooms.

The four Head Start programs summarized by Miller and Bizzell (1983) indicate strong and continuing program effects for Montessori boys. A possible explanation for their high scores on achievement tests may be an interaction between the individually paced, self-correcting, cognitive materials of the Montessori program and four-year-old boys' cognitive receptivity. The Montessori program and materials require focused attention and completion of activities -- skills that would serve children well in later school experiences.

Other children in the study fared less well when compared with the Montessori boys or control children who did not attend preschool. Control girls' IQ test scores dropped less than did girls' scores in the four preschool programs. Further, control girls' achievement test scores were as high as or higher than all other girls at 8th, 9th, and 10th grades.

Control boys achieved at the same rate as did boys who attended traditional preschools and scored higher than the DARCEE boys from 2nd grade through 10th grade. The control boys' IQ scores were more consistent than other boys' scores throughout the study, increasing the most at the end of kindergarten. This pattern of IQ scores increasing at kindergarten was also true for control girls. Interestingly, IQ scores peaked for the children in the four preschool programs at the end of the preschool year and tended to drop at the end of kindergarten.

This pattern suggests that experiences the children had in preschool (for program children) or in kindergarten (for control children) prepared them to score higher on the Stanford-Binet IQ test than they did prior to those experiences. This finding suggests that school experiences are closely related to the abilities examined by the Standard-Binet. Except for the Montessori boys, the pattern for IQ scores was to drop off at the end of the children's second year in school; kindergarten for program sample and first grade for control. This finding does not suggest that students became less intelligent. They most likely scored just as well on the same IQ test items; however, their increasing age would require them to complete more items correctly to maintain IQ scores set in the previous year; for example, a score of 90 at age five requires more items correct than a score of 90 at age four. A possible explanation for the drop in IQ scores may be that school experiences and IQ test items did not continue to have the same positive relationship as they did initially. It is possible that IQ scores serve as a test of experience rather than intelligence. Only the Montessori boys' school experience seems to have provided them with skills or the abilities required to continue to grow cognitively; that is, complete more IQ items each year relevant to their age.

The analyses of the DARCEE, Montessori, BE/Direct Instruction, traditional, and control groups were unique in separating effect for girls and boys in the programs. The control children did not attend preschool and provided interesting findings, though potentially disturbing to preschool advocates. The control girls achieved as well or better than other girls in the study when tested in the 7th, 8th, and 9th grades. The control boys tested higher than did boys in two of the preschool programs. The researchers suggest this

higher achievement by control children was due to the fact that they were from slightly higher socio-economic homes, since these families had not applied for entrance into the Head Start programs. However, control children's IQ scores were lower than other children at the first testing, while their achievement test scores at the same time were higher than other children's. Unless there was something especially nurturing in the homes of these children and absent from the other homes in the study, the case for sending children to preschool in order to achieve academically in school is not strong.

Another puzzling and interesting finding from the study was that after the 1st grade, the boys who had experienced the Montessori preschool program scored significantly higher than all other children at each of the following six-year testing points. The Montessori girls did not succeed in school in the same way. Only the girls in the traditional preschool had lower test scores than did the Montessori girls. Further, the Montessori boys' IQ scores did not drop lower by the end of the 10th grade, as did the IQ score for children in all other groups. We can only speculate that an interaction exists between four-year-old boys' cognitive structure and self-paced, self-correcting materials such as those used in the Montessori preschool program. This does not suggest that only four-year-old boys in the Montessori program will benefit from these materials. Perhaps three-year-old girls, who mature cognitively at an earlier age, or children in their own homes, would also benefit from these materials.

Summary

The findings from the Miller & Bizzell study report the effects of a one-year preschool intervention. This study, as well as other follow-up studies on a one-year preschool program, reports no longitudinal effects of the DI model. However, research studies using longitudinal achievement data from 1st - 3rd grades and 6th - 9th grades reveal positive outcomes for DI children. Apparently, children do need more than one year of this highly structured verbal program to succeed later in school. The children in the one-year BE Direct Instruction group reported by Miller and Bizzell (1983) achieved at about the same rate at the 9th and 10th grades as they did upon entering preschool. On the Comprehensive Test of Basic Skills administered at 9th grade, students scored at the 8th- grade level. However, the Follow Through children who participated in the Direct Instruction program from kindergarten through 3rd grade gained academically in school so that by 9th grade they were achieving at grade level. School records revealed that these children were less likely to be retained in grades, more likely to graduate, and more likely to apply for college than were the control students. Overall, the longitudinal findings for the Direct Instruction model are very positive.

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Social Development of the Young Child: Two Theories, Two Stories

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This presentation describes specifically social development in the early years, beginning in infancy and spanning early childhood. The areas to be discussed will be the child-caregiver attachment during the first 12--18 months of life and the development of prosocial behavior and social responsibility during the period from two to seven or eight years of age.

The field of developmental psychology is in the middle of an exciting period of growth during which more and more of the contemporary research emanating from the field is on topics of quite direct relevance to practice. Consider the fact that the field is barely 60 years old. Although there existed isolated pockets of research on aspects of child development prior to 1924, the field actually can be dated from the time that the Rockefeller family funded six child development centers -- one in Canada at the University of Toronto, and five in the United States at the universities of Iowa, California, and Minnesota, and at Columbia University and Yale University. The funding of these centers between 1924 and 1928, by the Laura Spelman Rockefeller Memorial Foundation, virtually created a field of research and an academic discipline. Research scholars who wanted to study children were invited to join the faculties of the Centers, and eager students wishing to get in on the ground floor of a new field of research flocked to them.

To give you an idea of the growth of the field in that 60-year period, in 1983 the 4th edition of the Handbook of Child Psychology was published by Wiley & Company (Mussen, 1983). (Some of you may remember the previous handbooks as the "Carmichael manuals."). The 1983 edition of the handbooks is an encyclopedic-like treatment of what is known about child psychology that fills four volumes with over 3000 pages of text and references, and 1010 pages of entries in the author index -- a remarkable record of productivity. If even a small portion of that work has led up to important insights about child behavior and development, the effort truly is outstanding.

Several weeks ago, a few thousand people attended the biennial meeting of the Society for Research in Child Development in Baltimore, Maryland. There are approximately 1800 program entries for the conference including invited addresses, research reports, and symposia. I sampled those entries with some care and I would judge, from the titles of papers, that well over three-fourths of the topics discussed are of direct relevance to practice and, hence, would be informative and thought provoking to child and family educators, health services practitioners, and others. Today, I doubt that we could get good agreement on a distinction between what is basic and what is applied research among SCRD members themselves since so much of what is considered basic developmental research has important implications for both practice and theory. The establishment of the Lipman Research Institute is timely, to be sure; over the next decade or more, the Institute can play a very significant role in bringing research information to the practitioner.

I will be talking specifically about social development in the early years, beginning in infancy and spanning early childhood. Although I will be describing research on the mother-child relationship, the principles and issues addressed by this research have quite direct implications for secondary caregivers and teachers as well.

I want to present work in two general areas of research -- the first is child-caregiver attachment during the first 12 to 18 months of life, and the second is the development of prosocial behavior and social responsibility during the period from about two to seven or eight years of age. I will comment on some continuities and discontinuities in caregiving from infancy to early childhood and discuss the role of two major social developmental theories, attachment theory and social learning theory, as they apply to these areas of development.

Attachment in the Early Months of Life

Let's consider attachment. I suspect that many of you are familiar with the attachment phenomenon as it was proposed by John Bowlby (1969). I will briefly describe the construct and the research methods used in the study of attachment, and then I want to tell you about some of the more recent revelations about early development gleaned from attachment research. If you will recall, John Bowlby proposed a biological evolutionary theory of mother-child attachment that paralleled that which assured the survival of the young in other animal species. He hypothesized that the newborn human child is primed genetically to become attached, having come into the world predisposed to seek and savor close body proximity to a caregiver. The infant comes equipped with a repertoire of proximity-related behaviors such as sucking, clinging, and grasping, and with a particular affinity for the human face and voice. The attachment process was likened to the process of "imprinting" in some animals, although Bowlby did not believe that the child's attachment depended on those few moments directly after birth as it does in many other species. In fact, Bowlby thought of attachment as a gradual developmental process that occurs over the first year of life, blossoming close to the end of that year, intensifying up to about 189 months, and then gradually becoming less intense as the child enters the preschool years. A clear indicator of attachment to the caregiver is the typical intense mother-preference shown by children around eight months or so, and the period of "stranger wariness."

Mary Ainsworth, a student of Bowlby's, was instrumental in moving the attachment construct into the empirical arena (Ainsworth, Bell, & Stayton, 1971; Ainsworth, Biehar, Waters, & Wall, 1978). Initially, Ainsworth spent many months making careful natural observation of mothers and their infants during the early months of life. She and her colleagues then developed an assessment task, called the Ainsworth Strange Situation, to measure the quality of the child's attachment to the primary caregiver (typically the mother) and an observation/rating scale of mothering behaviors to assess the quality of the mother's interactions with her infant.

Let's consider the assessment of attachment. Briefly, the Ainsworth Strange Situation is a 20-minute laboratory session in which a mother and baby (between about 12 and 18 months of age) are brought into a small, simply furnished room with a cluster of age-appropriate toys on the floor. Mom is instructed to get the baby interested in playing with the toys and then to sit down in a chair nearby as her baby explores and plays. In the course of the 20 minutes in the session a series of events takes place. The baby plays a short time, then a stranger enters and attempts to get acquainted with the baby, offering a friendly greeting. After a few minutes the mother gets up and leaves with nary a comment to the baby. Most babies are upset by this -- some more than others -- and the stranger tries to comfort the baby. The mother then returns and she comforts the baby, attempting to get the baby back to playing and exploring. The stranger leaves at this point, and then mother also leaves -- for the second time. At this point, virtually all babies are quite upset. After a short period, mom returns and again tries to comfort the baby and get him or her back to playing with the toys.

On the basis of this brief diagnostic procedure, children are classified as either securely attached or insecurely attached, and insecurely attached children are classified as either avoidant or resistant in their attachment. (I will not comment further on this particular distinction among insecurely attached infants.)

What are the behavioral indicators of secure vs. insecure attachment in the strange situation? First, observers note the quality of the child's exploration and play in the presence of mom. Secure babies play contentedly in her presence, perhaps checking with her from time to time by showing her a toy or babbling to her. Interestingly, the degree of upset when mom leaves is not a particularly significant factor in assessing the quality of attachment; virtually all babies are upset -- especially at mom's second departure. What is noted is the nature of the reunion of the mother and child. Secure babies make clear positive overtures to mom upon reunion. If the baby was only mildly upset, mom is greeted with smiles, delightful squeals and babblings. Highly upset babies with secure attachments approach mom for more direct physical comfort allowing themselves to be cuddled, soothed and reassured. Babies rated insecure show ambivalence or avoidance toward mom during reunion. They may fail to seek comfort and reassurance -- or seek it, but reject it when it is offered.

The predictive validity of this 20-minute laboratory procedure is remarkable. A surprising number of children are stable in their attachment status from assessment at 12 months to 18 or 24 months (Sroufe &

Waters, 1977). Attachment status also predicts social competence determined independent of the Ainsworth situation. In home and laboratory observation, securely attached children have been judged to be more self sufficient, cooperative, and compliant (Londerville & Main 1981; Staytor, Hogan & Ainsworth, 1971) and are more likely to approach tasks with positive affect than insecurely attached children (Matas, Arend, & Sroufe, 1978). Finally, secure attachment ratings made at 12 or 18 months of age predicted competence in peer interactions, and in task orientation, at ages three and four (Waters, Wippman, & Sroufe, 1979). That is very good prediction, indeed! It suggests that the quality of infant attachment, as measured by the Ainsworth Strange Situation, has significant consequences for the child's social, emotional and cognitive development during the important toddler and preschool years.

Let's get back to mom, who must be responsible for much of this early development. I mentioned that Mary Ainsworth had developed an optimal mother rating scale. The instrument identifies four mother-caregiving dimensions: sensitive/insensitive, accepting/rejecting, cooperating/intrusive and accessible/ignoring. The optimal Ainsworth mother is one who accommodates her behavior to her infant's wants and needs. She "reads" her infant's cues well, interprets the baby's messages accurately, attends signals of distress, helps to sustain her baby's exploration and play, responds to the baby's social overtures, and elicits social behavior from the baby without being pushy or overbearing. Berry Brazelton speaks of the mother and child doing a "dance" together -- the mother excites the infant up to a point short of behavioral disintegration, then backs off to let the child get its act together before resuming interaction. Babies reciprocate by responding socially and emotionally to mom's overtures and by using mother as a secure base of support for both object and social exploration and play.

It is easy to take this research for granted; it sounds so reasonable. We <u>should</u> be able to predict competence in the preschool years from the quality of mother-child interaction during the first 18 months of life. But, in fact, we have not been able to do that very well in the past. In the 1940's and 1950's, social learning theorists studied some of the critical developmental tasks faced by the young child such as weaning and toilet-training. They observed how caregivers managed excessive crying and dependency, autonomy striving and primitive aggressive outbursts (Sears, Maccoby, & Levin, 1957: Sears, Whiting, Nowlis, & Sear. 1953). As important as these child rearing functions are, they were not so effective in predicting child competences as is the contemporary measure of optimal mothering developed by Ainsworth.

I would like to propose an hypothesis as to why the Bowlby/Ainsworth theory, with its secure attachment and optimal mother constructs, predicts early competence better than did research from a social learning orientation. What the attachment theorists emphasize about the mother-child relationship in the first year of life is the mother's role in accommodating her <u>baby's</u> agenda -- not <u>her</u> agenda for the baby, but the baby's agenda. What does that baby tell mom it wants, and how effectively does mom "enable" the baby to get what it wants? The social learning theorists, on the other hand, emphasized the role of the <u>mother's</u> agenda for the baby. How does mom produce changes in the infant's behavior when she judges a behavior to be changeworthy? How does she help the baby to establish a reasonable sleep schedule? How does she manage excessive crying and fussing, the willful violation of "no nos," struggles to surmount barriers that parents put in place for safety reasons, and temper outbursts? Clearly, mothers and other caregivers must cope with these and other challenging problems over and over during the first 18 months of a child's life. Ainsworth does not enlighten us on this aspect of parenting. Consider the four characteristics of the optimal mother: she is sensitive, accepting, cooperates with her child, and is accessible. There is little recognition of the need for the mother to modify her infant's behavioral repertoire, nor is the mother's skill inspiring her baby to "do the cooperating" in the interest of family harmony assessed by this instrument. Yet, it is the attachment literature that does the better job of predicting child competence (including compliance and cooperativeness with caregivers) in infancy and early childhood.

The most obvious explanation for this state of affairs is that attachment theory has identified the most crucial aspect of the mother-child relationship during the first year of life -- the establishment of a strong affective bond between caregiver and child. The attachment that results would appear to have less to do with how the mother manages changeworthy behavior than how effectively she enables her child to be satisfied, contented, and busy at play and exploration. There is little doubt that mothers vary in how skillfully they handle the changeworthy behavior of their children, but the crucial parenting task in the first year of life may be the successful establishment of a secure attachment: all else is secondary.

It would be interesting to know how mothers of secure infants manage behavior problems when confronted with them. One would suspect that the mother who is successful in helping her young infant to feel happy, satisfied and secure also may be an effective, sensitive agent of behavior change. But that remains to be seen. As researchers continue to study competence as a function of attachment status--and particularly as they follow children into toddlerhood and early childhood -- more will be learned regarding the mother's dual role of accommodating her child's agenda while pursing her own parenting agenda as an agent of socialization.

A Social-Learning Theory View of the Early Months of Life

Let us consider now what social learning theory has to say about mom's role as a change agent in child rearing. Learning theorists proposed a similar phenomenon to attachment occurring during the child's first year of life called "emotional dependence" (Sears et al., 1957). As with attachment, emotional dependence is defined as an intense need on the part of the child for a nurturant, attentive relationship with the primary caregiver, preference for that caregiver over all others, and wariness of strangers. Social learning theorists proposed a different mechanism than Bowlby's proximity-seeking (although not an incompatible one) to account for the development of emotional dependence. Learning theorists endowed the child with a highly sensitive nervous system capable or registering pain, and capable or conditioning--that is, of learning to make connections between events and their outcomes. Conditioning is evident when the child obviously has made the connection between the pain of hunger and the mother's appearance and nurturant attention coincident with the reduction of pain. The learning paradigm is near perfect. Hunger occurs five or six times a day in a young infant. Being fed is virtually always preceded by discomfort that subsides magically when mom comes and offers the breast or bottle; hence, mom become endowed with powerful reinforcing properties. Particularly the gentle physical touching, smiles and pleasant social interactions that accompany feeding and other caregiving events become sources of reward for the child--apart from the caregiving context. It is primarily through this conditioning process that the child gradually acquires an emotional dependence on the primary caregiver; the very presence of the caregiver becomes a source of great comfort to the child.

In social learning theory, warmth and nurturance in the mother-child relationship is crucial just as it is in attachment theory. The child seeks ways to elicit and maintain the adult's nurturant attention even in the absence of a need for physical care. However, the social learning theorists carried the analysis a bit further. They pointed out one of the ironies of early socialization; the child no sooner becomes dependent on significant adults for love and affection when the adults begin to make their nurturance contingent on the child's giving up some autonomy and self gratification. Mom says, in effect, if you bite me, scream angrily at me, cry and fuss when I think you are not in pain, touch things are are "no nos," I will frown at you and refuse to give you hugs and kisses. Social hearing theorists referred to this kind of disciplinary technique as "withdrawal of love" specifically because tne nurturant mother-child relationship is used to motivate compliance in the child. The child wants and needs mom's nurturance enough to tolerate some constraints on behavior in order to get that nurturance and avoid disapproval. Even the most accepting parent interrupts the follow of nurturance at times to express displeasure at her child's behavior: this should not because for guilt. We need to talk to young mothers about this aspect of "life with baby" so that they will be prepared for it. We should not ignore, as the attachment theorists does, the fact that such parenting events are bound to occur and serve a legitimate purpose. We need to elaborate parenting strategies that are age appropriate and constructive for handling problem behaviors so that children will not be subjected to high levels of punitiveness that could seriously interfere with the development of a secure attachment, and ultimately, with social competence.

Constructive principles of behavior modification will almost certainly assume a higher priority at the time that children leave infancy and burst into toddlerhood with autonomy striving, conflicts between dependence and independence, the onset of intentional aggression, and the need to begin to consider others as well as the self become important child-rearing issues in the minds of parents. On the basis of its record for helping parents and other caregivers to understand the dynamics of child behavior in early childhood and beyond, social learning theory has no equal, in my view. It takes into account the embeddedness of behavior in complex interpersonal relations such as the mother-child dyad, and provides a powerful theoretical framework for understanding systematic behavior change. In the years ahead, one would hope that the attachment theorists and the social learning theorists would pool their insight regarding development to the enlightenment of all students of young children.

The Onset of Prosocial Behavior and Responsibility

I would like now to discuss a cluster of child behaviors that lie at the heart of socialization and that do, indeed, require the caregiver to take the best from attachment theory and social learning theory. As children emerge from infancy and toddlerhood, societal social values come into the picture. Children of preschool age are expected to begin to display non-egocentric behaviors such as empathy, sympathy, consideration for others, fairness, and social responsibility. Young children are not known for their altruistic concern for the other over the self. Piaget (1959) describes the child as egocentric -- unable to take the perspective of another and inclined to attribute his own perspective to others. In the view of Freud (1933), the young child fails to separate the self from the other and is motivated primarily by the "pleasure principle." Erickson (1968) discusses the child's narcissism and "sense of omnipotence."

How do parents, teachers, and other agents of socialization inspire their children to show other-oriented behaviors when, on the surface, these behaviors appear to be contrary to the child's self-serving, egocentric interests? How do adults build on the foundation of attachment and emotional dependence to establish for the child a "norm of responsibility?"

I want to comment on the research of three investigators whose work is well recognized in this area. In each case, the phenomenon under (prosocial behavior and social responsibility) can only be understood by recognizing patterns of child-rearing rather than individual child-rearing strategies. Also, in each case, the enlightened caregiver must take the perspective of the child in the tradition of Ainsworth's "sensitive mother," but also make effective use of the learning theorist's principles of behavior management.

I want to talk first about the work of Alfred Baldwin published during the last half of the 1940's (Baldwin, 1948). Baldwin and his colleagues studied the child-rearing practices of mothers of preschool children. On the basis of behavior ratings made by home visitors, they identified a child-rearing style of discipline called democratic in which the parent favors high levels of verbal exchange with the child, gives reasons for family rules, consults with the child about policy decisions, gives support for the child's initiative and curiosity, and establishes a low-key level of family emotionality surrounding discipline. (Democratic parenting was distinguished from a stricter, less open style of discipline called authoritarian and from a more permissive style called laissez-faire). Baldwin also had ratings on another parenting variable called control. Parents rated high on control believed in the firm establishment of limits and expectations. Restrictions, whether arrived at democratically or autocratically, were clearly conveyed to the child and there was a low level of friction in these homes over disciplinary decisions. The four-year-old children in this study were rated on an extensive battery of social and task-oriented behaviors based on observations in their homes and in a nursery school setting.

In assessing the effects of the democratic and control child-rearing dimensions independent of each other, it was found that parents who favored democratic practices had children who were high in activity level and who showed leadership and initiative in the nursery school, as one might expect. However, they also were high in aggressiveness, cruelty, and fearlessness. The control dimension had effects that appeared to be quite different. Parents high in the use of control had children who were low in quarrelsomeness, negativism, and disobedience, but they also were low in initiative and tenacity.

From these behavioral constellations, it appears that parents who emphasized democratic principles at the expense of control risked having children who were prone to pursue their own agendas without regard for the consequences to others. On the other hand, parents who favored control at the expense of democratic practices, had children who were attentive to the agendas of authority figures --t hey were quiet, well-behaved, and nonresistant -- but they also were restricted in curiosity and originality.

In combination, the democratic and control orientations appeared to strike a balance. Parents who were high in the use of democratic principles but who also maintained reasonably high levels of control over their children had children who were appropriately assertive without showing too little conformity to adult demands and expectations.

I want to comment now on the work of Martin Hoffman of New York University, who also has made significant contributions to the study of child-rearing practices as they relate specifically to non-egocentric

behavior and altruism (Hoffman, 1963). Hoffman conducted a study of "consideration for others" in a sample of middle-and-lower class preschool age children. The children were observed in a nursery school setting for indicators of general sociability as well as for consideration for others. The mothers of the children were interviewed about their child-rearing practices and were rated for the amount of nurturance they displayed toward their children. Hoffman also identified two contrasting disciplinary styles on which mothers were rated: rational/inductive discipline, which includes high use of reasons and explanations in support of demands (similar to Baldwin's democratic discipline), and a power-assertive style of discipline stressing high use of threats against the child and force without explanations. Finally, Hoffman assessed the degree to which mothers used what he called victim-oriented strategies in which the parent called the child's attention to the consequence of his or her misbehavior for the victim and expected the child to make restitution for misdeeds. Hoffman hypothesized that victim-oriented discipline would sensitize a child to harm done and to the feelings of others who have been wronged, leading to higher levels of consideration for others. He also felt that high power-assertion in child rearing would cause the child to be preoccupied with his or her own plight in the face of an angry, threatening parent, with little investment in the plight of the victim. As it turned out, Hoffman was right about power assertion (and others have found similar results). Threatening, punitive parents are not very likely to inspire in their children high levels of consideration for others. Again, a pattern of parenting strategies seem the most predictive of high levels of consideration by children. The optimal pattern for fostering consideration appeared to be high warmth and nurturance between mother and child, the use of rational/inductive discipline (featuring reasons and explanations for demands placed on the child) combined with victim-oriented approaches to misbehavior. High levels of maternal warmth by itself, without rational inductive discipline and attention to the plight of the victim, appeared to foster general sociability (friendly outgoingness in children) but not specifically consideration for others. Also, a victim-oriented approach alone, without rational/inductive discipline (with its reasons and explanations), did not predict consideration for others. Apparently, three factors in the rearing of these children made a difference -- nurturance between mother and child, the use of rational inductive discipline, and calling attention to the plight of one's victim.

Diana Baumrind of the University of California is the third investigator whose work I want to mention. Baumrind has conducted a number of studies on the relation between parent child interaction styles and social responsibility in young children, a construct that broadly samples the child's prosocial behavioral repertoire. Data on one sample of children studied by Baumrind (1971) were obtained from nursery school observations carried out over several months and in a test situation when the children were four to five years of age. The measure of social responsibility was a composite score for each child on three behavioral dimensions--friendly/hostile, cooperative/resistive, and achievement-oriented/nonachievement-oriented.

Data on the parents' child-rearing attitudes and behaviors were obtained during home observation and in separate interviews of mothers and fathers. (To preserve independence, the home measures were obtained by individuals other than those who were observing and rating the children in the nursery school and test situations.)

From her data, Baumrind identified a child-rearing orientation called authoritative in which parents preferred rational, issue-oriented discipline (similar to the rational/inductive discipline in Hoffman's study), encouraged verbal exchanges with their child and respected the child's needs and desires (similar to Baldwin's democratic parents) and, in addition, stressed the rights and responsibilities of parents to set behavioral standards for their children. The results of this study are not very persuasive for girls. In the case of boys, however, parents who used authoritative parenting strategies (in contrast to a more strict authoritarian style, or a more lenient permissive style of parenting) had sons who scored relatively high on social responsibility. As in the previous studies, it appears that parents who combine rational discipline (during which they show consideration for their child's point of view) with expectations that their child meet reasonably high standards of responsibility, appear to have socially mature sons.

The parents in these studies are, indeed, blending an agenda they have for their young children with the agenda the child has for himself. They treat their children respectfully and with consideration and expect consideration in return. They invite their children to have their say on issues that upset and frustrate the child, but they do not abrogate their responsibilities as adults vis-a-vis the child in their care. They expect reasonable conformity to demands and expectations, and accountability following misbehavior.

Competence in the Early Childhood Peer Group

We have considered mostly the ways in which adults influence the social competence of the young child -- particularly the ways they encourage social responsibility and prosocial behaviors such as helping, sharing and caring about others. How about the effects of peers on these behaviors? Are children in our early childhood programs inspired by their companions to display a developmental trajectory toward increased prosocial behavior throughout this age period? Although the evidence is somewhat mixed on this point -- peer relations in the early childhood years do not proceed as though they were made in heaven -- in general, the answer is yes. Children of four or five years of age, compared with two- or three-years-olds, are surprisingly sophisticated in their interactions with age mates.

What research do we have to support such a statement? First, there is evidence that preschool children in peer-group situations recognize social competence when they see it. Those children who are accorded high sociometric stats by their companions -- those most often watched, followed, selected as "best liked" or "friend" -- are indeed the more competent children in the group. High status children are generally friendlier than others and are more likely to be cooperative with peers and compliant with adults. They show what might be called "leadership ability:" they typically display average to high levels of dominance and assertiveness in peer interactions without being overly demanding or aggressive. Their preschool companions tend to reinforce their mature responses with accepting smiles, attention, affection, and imitative behaviors. At the same time, children in preschool groups are usually reflecting of companions who are egocentric or overly disruptive or aggressive, pressing these children to mend their ways of interacting with peers. (Very shy or withdrawn children tend to be ignored by their classmates rather than rejected.)

It is encouraging to note that friendly prosocial behaviors steadily increase in frequency throughout the preschool years, including such behaviors as helping others, sharing, affection giving, and generosity. In the case of help giving, for example, observations by Stith and Connor (1962) indicate that, while at all preschool ages, help <u>seeking</u> is more frequent than help <u>giving</u>, help giving gradually becomes more prominent in peer interactions. In their observations, the younger preschoolers sought help approximately six times as often as they gave help, while for the older children there were two instances of seeking for every one of giving. Furthermore, both help seeing and help giving in the older children tended to be addressed to peers rather than to adults, compared with younger children; thus, by four and five years of age, children are beginning to recognize the ability of their companions to be helpful to them when they are in need, as well as their own ability to be helpful to others.

This is not to say that life goes on the early childhood peer group without conflict. Indeed, observations from a number of studies suggest that the number of fights and arguments also increases steadily from age three to four or four and a half (at which point fights typically decrease). However, it should be noted that while conflict and aggression increases modestly, friendly interactions increase dramatically in most of the observed settings; hence, friendly behaviors are becoming more and more prominent over time relative to conflicts and fights.

The increase in conflicts among children is not too surprising given that older preschoolers play with a greater number of different children, for longer periods of time, and in larger groups than do younger preschoolers. Furthermore, the play of the older children typically is more complex, requiring frequent sharing, cooperating and compromising.

Even as conflicts increase in the peer group, evidence suggests that older preschoolers are becoming more civilized in their management of these encounters. Verbal aggression (as an alternative to physical aggression), compromise and negotiation become increasingly prominent as ways of settling conflicts. Also, more of the blatant aggression of the older children, compared with the younger ones, is retaliatory -- in response to clear violations of group protocol and justice -- rather than unprovoked. Clearly, children are being challenged by their companions to work out reasonably equitable solutions to conflicts.

As young children begin to develop ongoing friendships, the challenges are even more evident. Many of the conflicts preschoolers experience are, in fact, with their chosen friend rather than with acquaintances: hence, children are motivated to be considerate and thoughtful of special friends if they wish to establish and maintain such relationships. Willard Hartup and his colleagues at the University of Minnesota (Hartup,

Laursen, Stewart, & Eastanson, 1987) have recently completed a study of conflicts among four- and five-year-old chosen friends compared with those who are only acquaintances.

Clearly, friend pairs have conflicts as other dyads do! But what characterizes friends is that they manage conflicts better than do acquaintances. The conflicts of friends were more likely to be resolved by negotiation rather than by "standing firm." Friends more often found solutions that were equitable -- or at least partially so -- than did acquaintances, and friend's conflicts were somewhat less emotionally intense: friends at times defused their conflicts by temporarily leaving the scene or changing the subject. Finally, following the resolution of conflicts, friends were more likely to remain in proximity to each other and resume interactions than were acquaintances who have quarreled. Observations by Gottman (1983) suggest a similar pattern in that children who were just beginning to form friendships were observed to use gentler modes of conflict resolution (weaker demands, more compliance and negotiation rather than ultimatums) and to avoid extended chains of angry interaction compared with children who played together but who did not develop an ongoing friendship. Hartup makes the point that cooperation in early peer relations is both an antecedent of friendships (in that children are attracted to companions who can cooperate) and a consequence of friendship (inasmuch as children feel pressed to be cooperative in order to maintain a valued friendship).

It does appear to be the case that early childhood settings are effective training grounds for social competence -- particularly for those social behaviors that require perspective taking and consideration for others. Children learn from such settings how to make and maintain friendships and what behaviors are acceptable and unacceptable to their companions. To the surprise of many, preschool-age children--particularly by age four years -- are reasonably in "sync" with adults in that they approve and disapprove of many of the same social behaviors approved of and disapproved of by parents and teachers. Children of this age do, indeed, help to socialize each other. With the help of parents, caregivers and teachers who can skillfully guide children toward more mature management of their peer interactions, the early childhood years can provide a firm foundation for prosocial peer relations during the grade school years and beyond.

Summary Comments

I have hypothesized a developmental continuum in parenting that begins with the child's agenda as top priority during the early months of life; the child's needs and wants are accommodated as much as possible. In time, however, a blending of the child's agenda and the caregiver's agenda -- the child's perspective and the caregiver's perspective -- takes over as the child emerges from infancy and enters the early childhood peer group. An Ainsworth caregiver teaches -- sensitive, accepting, cooperative, and assessible -- will continue to be important in helping the child to advocate on his own behalf. A social learning perspective, with its orientation on producing desirable behavior change, will be important in helping the child to assume responsibility and to accept wiilingly the "constraints by consensus" that society places on the behavior of all of us.

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Research and Related Issues: Cognitive Development of the Young Child

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This paper describes three areas in cognitive development during the preschool years and highlights major themes and suggests implications for teaching practice and social policy.

How well prepared are four-year-old children to succeed in school given what is known about cognitive development? Two sections comprise this paper. First, classical and contemporary theories will be surveyed. Second, what has empirical research on early cognitive development added which contributes to our understanding of appropriate expectations for four-year-olds in classroom settings?

Classical Views

A number of theories of cognitive development have been in existence for some time now, which have proven to be very inspirational not only to practitioners but also to modern day researchers and theorists.

Theories of mental development proposed by Piaget (1977), Vygotsky (1962), and Werner (1948) share an overall agreement regarding general developmental progression from early sensorimotor concrete organization of experience to a more autonomous categorical-inferential or abstract mode of organizing experience. Each purports to provide a comprehensive description of the young child's interaction with the environment and the child's conceptualizations of the environment. According to these classical theories, the early years are marked by a dramatic liberation from perceptual- or stimulus-boundedness as the child's symbolic capacities blossom and as language develops. Sensorimotor intelligence involves conquering the object (object permanence), while pre-conceptual and intuitive intelligence involves conquering the symbol (logical operations). Cognitive development during the preschool years entails internalization--objects-to-symbols or representations and actions-to-operations or thought processes whereby actions-on-objects become symbolic thought or represent nationally-bound operational thinking.

In sum, the classical theorists, while differing on specific emphases, all agreed on the general direction of cognitive growth. Four- and five-year-olds, by these accounts, are not viewed as systematic, logical thinkers. They are seen to be in the midst of change, transitional on the road from sensorimotor to operational intelligence.

Contemporary Views

The classical theories had two other features in common as well -- features that modern thinkers consider to be limitations. One was the relative lack of concern for the role of the specific environmental factors that impinge on mental development and influence its course; the second was a notable prescription to an omnibus position concerning the development of intelligence, or to the existence of a general symbolic capacity.

Contextualizing Cognitive Development

Recent theorizing on cognitive development during the pre-school years has attempted to flesh out situational determinants that influence its course. The early theorists did not totally neglect or forget this topic, they merely were placing their emphases elsewhere. For example, Piaget's construct of discrepancy resolution inherent in disequilibriation as a mechanism of developmental change influenced J. McV Hunt's (1961), who, in turn, coined the term "the problem of the match" to refer to developmentally appropriate stimulation needed to stretch the child forward. Vygotsky's "zone of proximal development" shares as another influential link to Hunt's formulation, just as Piaget, Vygotsky, and Hunt all influenced Bruner's (1973) thinking concerning "scaffolding," which refers to how an adult can accommodate to the limited abilities of the child in order to help the child participate meaningfully in mutual interaction and thus reap all

the benefits from this important kind of social commerce during the early years. It should be noted, however, that with the exception of Piaget, who saw particular value in child-child interaction to reduce the child's egocentric tendencies, which, when interlocked with adult constraint impede cognitive development, the theorists were referring primarily to adult-child interactions.

Building on the work of Piaget, Vygotsky, Werner, and Bruner, Sigel and his associates have been working on the task of improving our understanding of the ontogenesis of representational thought (Sigel, McGillicudy-Delisi & Johnson, 1980). In particular, we are interested in specifying the kinds of experiences that contribute significantly to the development of representational thought and to the ease with which children can conserve meaning among various representation of objects and events. Sigel (1970) has coined the term "distancing behavior" to refer to those behaviors by significant others that serve to "force" the child cognitively to separate self from the here and now. Distancing events energize or activate and channelize the child's representational thinking and thus promote its use and development. These events can be verbal (e.g., teachers comments or inquiries) or nonverbal (e.g., new room arrangement, placement of a novel object). In either case, distancing is a fundamental social process that enhances the development of representational thought (Sigel, 1987).

Differentiating Cognitive Development

Another preoccupation of contemporary theorists of early cognitive development is differentiating cognitive development. As noted previously, the classical theorists adhered to an omnibus or general conception of intelligence or to viewing the developing symbol system as an unfolding unitary capacity. More recently, a number of psychologists and educators, influenced by theorists such as Piaget, have come to the conclusion that this way of conceptualizing intelligence may be too narrow, and so these researchers have begun garnering evidence supporting a more pluralistic view of cognition (Feldman, 1980; Gardner, 1983; Keil, 1984).

Gardner (1983) has been most outspoken that the mind is organized into relatively separate realms of functioning. His sources of information have been from a kind of subjective factor analysis of different sets of data from diverse disciplines including brain injury research, psychometric empirical research, cross-cultural anthropological research, special populations (i.e. autism, idiot savants, prodigies) research, and cross-species research suggestive of our evolutionary past. He originally proposed seven relatively independent systems localized in regions of the brain: linguistic, spatial, logico-mathematical, musical, kinesthetic, interpersonal, and intrapersonal. A pure raw, unmediated, intellectual competence resides in one's information processing capacities, but the raw material is used in the different symbolic systems. Gardner and his associates have defined cognitive development as "....the growing capacity to convey and appreciate meanings in the several symbol systems which happen to be featured in a given cultural setting " (Malkus, Feldman & Gardner, in press). Learning, memory, and perception are not the same cognitive process cutting across the different symbolic systems. According to Gardner's Theory of Multiple Intelligences (TMI), they would be different cognitive processes.

A general educational implication from TMI is that each child in early life becomes "at risk" or "at promise" in each symbolic domain, given the sociocultural opportunities, encouragement, stimulation, or lack thereof, for each category of intelligence as found in the environment in which the child is developing. Because one cannot prejudge in which areas a child may have latent talent, assuring a general exposure to all kinds of stimulation relevant to each type of intelligence is more prudent than providing more limited but intensive exposure to only factors selected to affect a particular intelligence such as logico-mathematical reasoning or language.

To conclude this section, classical theories of cognitive development portray the preschool children as having incomplete conceptual frameworks, limited knowledge, and a certain illogic about them -- they are not fully decentered and abstract in their approach to the environment. More recent theories have improved our understanding by looking more closely at the social context of cognitive development and at the nature of cognition itself. Empirical research has yielded some interesting and suggestive findings relevant to theories of cognitive development and to the questions of formal schooling for four-year-olds.

Contributions of Research

Over two decades ago psychologists were in the midst of researching the phenomenon known as the five-to-seven shift (Kendler & Kendler, 1962; White, 1965). A large part of this interest was due to the fact that this age period coincided with the point at which children were making the passage to formal schooling. Theorists have proposed that there is a stage change at this time (Freud, 1938; Piaget, 1960; Vygotsky, 1962).

Qualitative Evidence

Cross-cultural ethnographic data indicate that both Western and non-Western societies change the social place of children at the age when they place them in school, at an age overlapping with when some developmental theorists argue that there are stage changes in cognitive development.

Ethnographies of 50 cultures that had extensive information about childhood were selected from the Human Relations Area File (HRAF) at Harvard University by Rogoff, Sellers, Pirrotta, Fox, and White (1975) to estimate ages at which each culture assumed responsibility or teachability in children or assigned a more mature social, sexual, or cultural role. For 16 of 27 categories inspected, there was a modal shift in the five-to-seven year range in cultural assignment of social responsibility. According to Rogoff et al. (1975), in Western societies the practice of beginning serious schooling between five and seven has been standard for a long time. Western society's changed treatment of children pre-dates stage postulations about latency, concrete operations, or mediation.

The English common law, as codified by Blackstone in 1769, has traditionally held the child of seven years to be first capable of knowing right from wrong, first capable of being guilty and liable to stand trial. Catholic canon law makes similar assumptions about the child's capability of sin. Historically and cross-culturally, then, there has been wide recognition, implied if not formalized, that it is after age four years that a critical turning point occurs in the child's cognitive status. Public school participation extended downward, then, would be bucking the accumulated wisdom of mankind, according to this evidence, if the form it takes is to pursue educational curricular goals appropriate for older children when younger children would appear to only benefit from the use of methods and approaches appropriate to their own age.

Quantitative Evidence

Interest in the question of the kind of change that occurs during the five-to-seven shift has interested developmental researchers from diverse backgrounds (Brown, Bransford, Ferrara, & Campione, 1983). Learning theorists have argued over the proposition that a qualitative shift occurs between non-mediated learning in the preschooler and mediated learning in the older child (Kendler & Kendler, 1962; Zeaman & House, 1963), or whether a change occurs from absolute to relational learning (Brown & Scott, 1972; Reese, 1968). Piagetian-inspired researchers, pro and con, have been also very active examining the qualitative changes that take place in the transition from preoperational to concrete operational thought (Gelman & Baillargeon, 1983). Memory and metamemory researchers also became interested in a five-to-seven shift in use of memory strategies (Wellman, 1977).

Recent empirical evidence from different domains of cognitive functioning has put into question the ubiquitous five-to-seven shift, and suggest that preschool children have more competence than originally thought based on theory. Although a full-blown operational status may not occur prior to the idealized five-to-seven transition, various propensities in younger children exist, supporting theories that their cognitive abilities may have been underestimated by earlier theory and research that employed traditional laboratory tasks or other artificial assessments. To uncover early competence has required that assessment take place under circumstances ideally designed for the preschoolers' interests and abilities. To expose early competence has required that the researcher (and teacher?) strip away all but the most essential feature of the task to reveal its cognitive demands in the simplest possible form and that the assessments be situated in a familiar context.

Examples of research studies that have suggested higher competence in younger children have done so by taking to heart these procedural recommendations; they are many. For instance, Istomina (1975)

investigated the gradual emergence of strategic planning in preschool children. He found that preschool learners and memorizers showed an early propensity to plan, although other researchers reported that full-blown forms of rehearsal, categorization and elaboration are not apparent prior to age five years. To reveal this propensity, however, the situation must be such that the goal of the activity is clear to the child, the setting familiar, and the index of strategy use lenient. Istomina asked preschool children, accordingly, to remember a list of items to be bought at a play store and compared performance to when children were given the same list as part of a formal lesson. Performance was significantly superior in the play condition, with strategies adapted and the way in which they were used more developed comparing children from four to six years. Even the youngest children knew what it meant to remember. However, as Istomina noted, "They must not only know what remembering is by itself, but also be able to see it as an end result, an objective to which activity must be directed, i.e., to grasp it as a goal" (Istomina, 1975, p. 59).

Counting, conservation, and class inclusion success are apparently not beyond the preschooler when specially devised tasks are employed. For instance, Hughes (1986) reported in detail a study involving a box task in which young children displayed significantly superior performance adding and subtracting small numbers compared with when a formal testing situation was imposed. On the box task children are asked how many are in a box after the investigator adds or removes bricks. The problem is real and meaningful for the children in the way some of Piaget's tasks are not.

Others have devised ingenious procedures revealing early competencies in class inclusion and in the conservation of numbers (Gelman & Gallistel, 1978; McGarrigle & Donaldson, 1974; McGarrigle, Grieve, & Hughes, 1978). Gelman and her associates have demonstrated that children as young as three years of age understand the invariance of small numbers -- three or fewer -- using her "magic" game in which after children develop an expectancy that a particular arrangement will contain a certain number of objects, the arrangement is surreptitiously ("magically") rearranged or objects are substituted with others. Likewise, McGarrigle and Donaldson (1974) found that significantly more children conserved numbers when a "Naughty Teddy" messed up an array compared with when the adult experimenter formally rearranged the objects as if to suggest to the young child that something important and deliberate was taking place. McGarrigle, et al. (1978) similarly use Teddy's steps strategies to uncover preschoolers' latent class inclusion understanding. In all of these examples the thinking tasks were translated into something more familiar and meaningful to the young child, or changed to "make human sense," as Donald puts it.

Adler (1984) has noted, in a similar view, that often the wording used in formal assessment violates ordinary conversation rules of being "relevant" and pertinent. The class inclusion probe of Inhelder and Piaget (1964), for instance, "Are there more tulips here or flowers," is an obscure if not downright deceptive inquiry given the perceptual cues present in the task. Children may assume they are being asked a perceptually evident question and, hence, do not compare the subclass with the class. When asked to make more legitimate subclass to total class comparisons, preschool children appear sensitive to the principles of "class inclusion" ("Are there more children or more people?"). Susan Isaacs (1930), over fifty years ago, illustrated many examples of the kind of intellectual performance that even children as young as three to five years are capable under the right conditions.

Tizard and Hughes (1984) reported recently some very interesting findings from their ethnographic study of language behaviors and inquisitiveness of 15 middle-class and 15 working-class girls, comparing behavior at home versus at school. Once again, young children, and in this case particularly working class children, appeared more competent at home or when in the familiar and meaningful setting. These preschoolers were seen to engage in rich verbal exchanges with their mothers and seemed very persistent and logical as they beavered away at tasks that interested them at home. This contrasted sharply with their behavior at school. There they did not ask or answer as many questions and were less verbal and intellectually active in general. Tizard and Hughes reasoned that for these preschoolers all human experience was grist for their intellectual mill. The preschoolers in their study were particularly interested in other people's viewpoints and in social casuality but were much less interested in questions of physical casuality.

Others have reported superior behaviors and skills by young children under naturalistic conditions. Garvey (1977), for instance, reported that the highest levels of linguistic maturity were evident in the language of four-year-olds when they were engaged in spontaneous role play. Moreover, extensive literature exists suggesting that problem-solving behavior in young children is more efficient and combinatorially rich

under play conditions than under observational learning or tutorial conditions (Rubin, Fein, & Vandenberg, 1983).

Academic versus Everyday Cognition

From the theoretical and empirical evidence cited, it is clear that there are pronounced qualitative changes in the cognitive abilities of children during the early childhood years. Classical stage descriptions and their extrapolations by today's revisionists underscore the importance of the preschool years for overall intellectual development. Strong consensus exists across theories concerning the general sequence of cognitive growth. Disagreements occur primarily over exactly when young children possess certain abilities and regarding whether there is any necessary way different cognitive abilities and task performances inter-relate. From the work reviewed here (which has excluded an important area of the cognitive literature pertaining to efficacy of training studies), it would appear that the five-to-seven year pivot may be somewhat misleading. It is a gross idealization, dichotomizing the "under-fives" as pre-casual, egocentric, pre-operational, passive, nonstrategic, and nonplanful, and the "over-fives" as decentered, logical, planful and strategic. It is absurd to think that one fine sunny morning a child wakes up suddenly nonegocentric! Cognitive development is a gradual, day-to-day process. Cognitive performance of young children is notoriously susceptible to context effects. The rate of cognitive development differs dramatically across children, as individuals and as groups.

Brown et al. (1983) referred to the important distinction between academic and everyday cognition and noted that a disproportionate share of the empirical research literature deals with what is called academic cognition. Academic cognition is effortful, isolated, and cold, while everyday cognition is relatively less effortful, social and affect-laden. Learning is interactive and dynamic. The young child's everyday cognition is scripted knowledge, based on observations of others in social roles and on the observation of physical phenomenon. Vygotsky (1962) referred to the difference between practical knowledge and scientific knowledge; Piaget (1960) referred to practical intelligence on a motoric plane and symbolic intelligence on a symbolic plane. Children appear less cognitively able when in situations that call on academic, scientific, or symbolic abilities, and they are more cognitively able when in situations where everyday, practical knowledge and cognition can prevail.

Formal schools traditionally, and by definition, have been concerned primarily with success in terms of independent competence. The emphasis has always been on deliberate and efficient use and mastery of problem-solving skills and basic skills and on the acquisition of factual and procedural knowledge. Less attention has been placed on emotional factors that may promote or impede efficient learning or thinking. Yet, as we have seen, early cognitive competence is very fragile (i.e., production deficiency hypothesis). Teaching and assessing four-year-olds in public school settings is doomed unless special emphasis is placed on embedding cognition in everyday practical terms so that all classroom communications "make human sense."

Conclusion

Given the limitations of the young child's cognitive capacities, particularly with respect to the information processing capacity or the "effective capacity" of young children (Price, 1982), it is of paramount importance for classroom practice to be modified to take into account the special needs of four-year-olds. These classroom modifications require a shift in thinking concerning the role of the teacher and the definition of instruction.

Price (1982), in a review of cognitive learning in early childhood education, discussed the importance of "de-coupling" teaching and learning. This is difficult for teachers to achieve given that expecting and seeing children learn what is taught is reinforcing to the teacher. However, in his analysis of the role of verbal processes in learning and overlearning and the establishment of automaticity in retrieval in children, Price argued that educators need not be resigned to simply waiting for maturational bottlenecks to be removed. In an ambient manner, lessons can be introduced to young children which are simplified in order to lower the demands on attentional capacities. He stated, "Children can be introduced to concepts that bring manageable parsimony to something previously too complex. Educators can work to foster familiarity with elements that, if unfamiliar, could not be assembled by a child into a manageable whole" (p. 282). The familiarization with letters and numbers which could result, and in a pressure-free way, would prepare the

child for higher-level skills such as those which are involved in reading or in mathematics. This can be done without interfering with the child's motivation to learn. Dissatisfied with both the interventionist's motto of "teach earlier expect learning earlier" or the anti-interventionist's motto, "teach later, expect learning later," Price commented, "Both approaches prevent children from experiencing a prolonged, pressure-free period of familiarization, which would be possible if efforts to teach and expectations for mastery were uncoupled from each other. Familiarity would be maximized and difficulty minimized by following a teach earlier expect later approach" (p. 282).

This approach is antithetical to the drill and practice methods of reinforcing children's imitations of adults, or coaxing young children to give the right answers (e.g., calendar days, letter recognition, flash cards). Implicit in this approach is the recognition of the critical distinction between learning and the disposition to learn. Early childhood education must cherish the latter and never risk stealing it away from the sake of the former. Lillian Katz recently took the stand that the closest thing that comes to a sin for teachers, in her view, was to make young children behave as if they understand when in fact they do not and thus undermine their confidence in their own intelligence. Academics for three-to-five-year-olds must be guided by the realization that exposure or instruction under ambient conditions can be benign but only if there is not too much of it so as to undermine dispositions to learn in young children. As Zigler (1986) quipped, "Our four-year-olds do have a place in school, but not at a school desk" (p. 14).

There are many parts to a developmentally sound educational program for four-year-olds (Day & Drake, 1986). The use of distancing strategies with young children, for example, is consistent with the orientation to classroom practice outlined above. Distancing is child-centered instruction and content-general. In other words, distancing is an effective teaching strategy which is based on cognitive processing considerations and not on a concern with transmitting specific information. Another vital ingredient is providing for and nurturing developmentally appropriate play behavior in preschoolers. Strategies for incorporating play in curricula for young children are diverse and are based on an accumulation of research evidence in support of the hypothesis that play is intrinsically interlinked with the cognitive development (Johnson, Christie, & Yawkey, 1987).

To conclude, a considerable amount of information is available concerning the cognitive development of young children which can serve as a guide in teaching practice and social policy. From this review, the early theoretical descriptions of cognitive changes were seen to refer primarily to what was called academic as opposed to everyday cognition. Important early competencies do exist. Young children do have an intrinsic motivation to learn and to understand. They deserve developmentally appropriate educational challenges. What should be stressed is that the alternative is for four-year-olds to remain understimulated. Preschoolers are a diverse group. Making the wrong kinds of demands for a particular child is all too easy to do particularly for younger children. ,At this time, the only chance would appear to be for public schools to listen attentively to the then considerable historical and contemporary testimony available from research and theory construction and to tailor the child's outfit accordingly. We want a Sunday best suit, not a Halloween costume.

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A Developmental Pediatrician's Experience with Four-Year-Olds in Schools: A Suggested Approach to Common Problems

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This presenter focuses on several areas of development and of functioning that have proven to be useful in the assessment of individual children and are familiar to teachers of young children. The emphasis is on the child's abilities as well as problems and on a process whereby decisions can be made regarding the special needs of four-year-olds whose behavior worries their teachers.

The material to follow is derived primarily from my work over the past 35 years or so with young children and their parents in the setting of a developmental and mental health clinic in the Yale Child Study Center and from work with early childhood educators in nursery school, day care and therapeutic nursery school settings. I have always been grateful that my training as a pediatrician specializing in child development and behavior included experience as an assistant teacher in a nursery school, because of the education I received from the children and the teachers during those interesting, enjoyable and strenuous times. I have also been privileged to work closely with teachers of young children as a colleague and consultant for many years. The experience I share comes from many exchanges with teachers, both about discussions of developmental and behavioral issues in general and about the problems of individual children. Among the commonly encountered questions and concerns are those that deal with how best to serve the child who is "different" in some ways from his healthy peers; how to recognize a child's need for special help within or outside the school setting; how to go about communicating with parents in regard to one's concerns about their child; and how much can be done in the school setting to alleviate the child's problems. I believe that issues of this kind are becoming more prominent for two reasons: one is that schools are being asked increasingly to include in their preschool group, children with developmental disabilities and other identified educational handicaps; a second is that the concept of early education extending downward from Head Start is now correctly seen as a very important part of preserving and enhancing the development of disadvantaged children and those at risk due to adverse psychosocial influences in their environments. So it behooves us, I think, to consider in particular how to plan for children whose needs go beyond those variations we ordinarily expect in any group of peers. What happens to them in our early intervention programs and early education programs, I believe, will be of great importance in the success or failure of later educational efforts.

There are many areas in which the interests of educators and of child development clinicians overlap. These are in part the shared understanding of normal development -- its characteristics, tasks and phases. But even more, I believe, we share concern about the definition and recognition of departures from healthy development, of which learning is an essential part.

The center of most of the understanding of children that each of us brings to our daily work is state of the art knowledge of development, behavior and learning compiled from many sources: from generations of living with children at home, at school and elsewhere; from studies of healthy children reared in nurturing environments; from children who suffer from physical and mental handicaps either inborn or acquired; from children living in environments that are inadequate or frankly damaging. The experience in the practice of our separate professions as early childhood specialists and the theories of development and the philosophies we prefer, of course, shape our individual approaches to understanding children and to developing programs and therapies directed at alleviating problems. There is much in education that is therapeutic just as there are many instances in which it is appropriate for therapists of young children to use educational methods.

What I shall present to you as a framework for thinking about young children is admittedly from a clinical perspective that deals primarily with one child at a time and the adults who are important to him. How an individual four-year-old appears, behaves, gets along or has trouble in a group of peers, however, is

my focus. What I will propose is that teachers have a vitally important opportunity to recognize those children whose development may be in jeopardy and to facilitate their having the necessary help as soon as the need can be identified. And I know that a process of child observation, assessment and communication with parents such as the one to be described is both feasible and effective.

I have chosen, in discussing problems of development and behavior that typically come to the attention of teachers in early childhood programs, to avoid medical diagnoses such as cerebral palsy, mental retardation, behavior disorder, attention deficit disorder and the like. Instead, I shall focus on several areas of development and of functioning that have proven to be useful in the assessment of individual children and are familiar to teachers of young children. My emphasis is on the child's abilities as well as on problems and on a process whereby decisions can be made regarding the special needs of four-year-olds whose behavior worries their teachers. The material to follow includes a discussion of (1) relevant dimensions of development; (2) common troublesome behavior of four-year-olds; (3) working with parents; (4) questions that influence decisions about referral; and (5) the process of referral.

Relevant Dimensions of Development

We know and relate to the child as a whole person and that is as it should be. But we also find that we need to look at a number of different aspects of development, to take him apart so to speak, in order to sharpen our awareness of how best to understand and characterize him. The annotated list to follow is not exhaustive; other domains might be added or substituted. Each of you will have developed your own preferred areas of observation and assessment of child behavior. I cannot emphasize too strongly my belief in the importance of teachers' observations as a basis of knowing and planning for each child. My preference for the dimensions listed below is that they make sense to clinicians and parents and teachers. They are part of the vocabulary we all use in speaking of children. Basically, we look at the child against the background of what is expectable developmental behavior for his age. When delays or deviations are noted or when a child is strikingly different from his peers, or when he begins to change markedly for the worse when compared with himself, there is usually cause for concern.

In each of the ten dimensions listed below, a few sample question are given. You can no doubt expand these with your own questions.

1. **Physical Health and Growth**
   What is the child's state of general health? Is he growing normally? Is he often ill? Is he well nourished? Are there signs of visual or hearing difficulty? Is he accident-prone at school? How does he react to injuries or illness?

2. **Motor Development and Activity**
   What motor skills has the child acquired? What can be said about coordination? Are there big discrepancies between gross and fine motor abilities? How active is the child motorically? Would you consider him overactive? Unusually underactive? Inhibited?

3. **Feelings (Emotions) and Their Expression**
   How does the child show his feelings? Can you recognize when he is pleased, displeased, angry, sad, fearful, joyful, excited, etc.? Does there appear to be an expectable range of emotions? What about intensity? Does he try to let you know how he feels? Does he have words to apply to his feelings and those of others? Do you see signs of awareness of how others feel?

4. **Communication - Verbal and Non-verbal**
   How well does the child speak? Is speech easily understandable? If not, can you specify the type of difficulty? How about size of vocabulary? Use of pronouns? Use of modifiers? Syntax? Does the child seem to hear and to understand the speech of others? Can he follow verbal directions? What gestural language and other unspokencommunication is available to him? How and when does he use it?

5. **Intellectual Development**
   How does the child show his awareness and understanding of his human and material world?

Are there areas in which learning seems to lag? Are there differences in his "practical" intelligence and his use of conventional school materials?

6. **Relationships with Others**
How does the child interact with teachers, parents, and other children? What social skills does he display? Does he have a friend? How does he adapt to the school group? Does he speak of home/parents/other family?

7. **Self-Regulation and Self-Esteem**
How much ability does the child have in regulating his own behavior (bowel and bladder function, eating, sleeping, control of aggression, etc.)? How does he seem to feel about himself? How much self-confidence doeshe show and in what areas?

8. **Capacity to Play**
A child who cannot play is a child in trouble. Knowing the child through his capacity (or the lack of it) to play is a basic requirement not only of early childhood educators but also of child psychiatrists and other child psychotherapists. It is perhaps the largest window into the inner life of the child available to us. So we ask: What does the child play? What imagination can be recognized? What worries, fears, and conflicts become apparent? What feelings of joy and pleasure are expressed? What dramatic themes and roles are played out and how? What level of intelligence is revealed? Does play help with problem solving and relief of tension? How well does the child play with other children?

9. **Coping Abilities**
How does the child react to and attempt to cope with stress? What strategies is he able to mobilize to handle disappointment, fearfulness, physical discomfort, an attack from another child, etc.? When do the coping efforts appear to be successful? When do they fail, even after a good try? When does the child simply seem overwhelmed by his feelings or a particular situation?

10. **Reasonable Compliance wth Appropriate Adult**
(Parent and Teacher) Requirements Is this four-year-old one that can comply with requests from the teacher and follow the rules a good part of the time, even though reminders are needed? Can he defer what he would most like to do if there is a reasonable explanation from the teacher? Does he have enough trust in the benevolence and fairness of this teacher that he can stay in control of his behavior most of the time? Is he excessively complaining, afraid to object or resist or, on the other hand, does he resist and exceed reasonable limits frequently?

Over a period of weeks or months one has an opportunity to know a child, how he is developing, how he changes or remains the same, what aspects of development proceed apace, what functions lag behind. You will have information from interviews and informal exchanges with parents, as well as your observations of the child and of the child with his parents and perhaps other family members. These are often supplemented (with parental permission) by information from physicians, nurses and others who have contact with child and family. At any one point you can ask three productive questions of your cumulative data.

What does the child do? What skill has he acquired? What is his level of competence in respect to motor development or speech or problem-solving? What are his social skills and play skills? How does he cope with stress? How does he express his feelings?

How does the child make use of his capacities and skills? The answer to this second question tells much about the adequacy of his adaptation to the opportunities, challenges and demands of his everyday life. Again, a number of questions can be posed. Does he use his skills for (1) the sheer pleasure of the activity? (2) to obtain something he wants? (3) to avoid a potential painful or uncomfortable encounter or danger? (4) to master a new situation or task? (5) to communicate his ideas, fantasies or feelings to another person? (6) to seek help or comfort when he needs it? (7) to establish, elaborate or renew his relationship to another child or adult? These answers can be looked at for what they might reveal about the child's general development; they also help to define his individual style and personality.

What are the parents' attitudes toward and characterizations of the child? In what respects are they similar to your own? In what way dissimilar? If they are markedly dissimilar, do they reflect great variability in the child's home and school behavior? What might account for the differences?

Common Troublesome Behaviors

It may be useful to list, here, a few of the most frequently encountered behaviors that in my experience are likely to arouse concern in teachers and parents. They are generally conspicuous and often noisy. If more than transient, any one of them is likely to indicate the child's need for special attention.

1. Problems of activity; e.g. hyperactivity or extreme passivity.
2. Intractable separation problem.
3. Avoidance of social contact.
4. Problems in control of aggressive behavior.
5. Soiling or wetting.
6. Excessive masturbation.
7. Involving others in sex play.
8. Excessive need for pacifier, bottle, thumb or transitional object.
9. Extremes of emotional expression: giddiness, excitability, sadness, frequent crying, severe anxiety, depression.
10. Peculiar or stereotyped body movements (hand flapping, unusual postures, twirling).

Clearly, as is true of the developmental dimensions, judgments about some of the above are dependent upon your knowledge of four-year-olds and what behavior is considered "normal" or not "excessive" or "extreme." For the most part, these behaviors, if persistent, will arouse concern in parents and pediatricians as well as in teachers.

Questions that Influence Decisions About Referral for Additional Services

1. Does the problem distress the child (cause psychological pain)?
2. Are the child's parents aware of and worried about the aspect of development or behavior you have identified as deviant or questionable?
3. Does the behavior or developmental disability interfere with the child's use of the school program? In what way?
4. Is the problem one that you expect might interfere with his development and learning in the near or distant future?
5. Does the problem interfere substantially with his social development?
6. Does the child's problem make it difficult or impossible for other children to benefit from the program?
7. Has the problem existed over a period of weeks or months?
8. Is there a developmental or situational crisis in the child's life?

Working with Parents

There is considerable difference among educational programs for young children in their practices regarding contact with parents. These practices are determined in part by the way in which the school's role is defined, in part by parents' expectations and wishes, and in part by the degree of comfort teachers have in interviewing and in counseling parents.

The amount of information about child and family requested as a part of an application and admissions procedure varies from one school to another as does the frequency of planned conferences between directors or teachers and parents, the amount of informal contact around arrival and departure, group meetings with parents, etc. Communication is facilitated, of course, when parents feel welcome in the school setting and know enough about the school and the teachers to approve of it as a place for their child. The continuing exchange of information between parents and teachers and the knowledge that goals for the child's development and education are shared goals help to create an atmosphere of mutual respect in which a partnership is developed between teachers and parents in the child's behalf. In such an atmosphere, the

teacher's sharing concerns about the child with the parent becomes easier, though it is difficult for parents to discuss their child's problems and their own feelings about these problems.

When there has been minimal contact between teacher and parents, when little information has been exchanged it becomes more difficult to decide how best to proceed when teachers are concerned about a child. In general, even when communication between parents and teachers is reasonably good there are (1) parents who are concerned about their child and share that concern with you; their concerns may or may not coincide with your own; (2) parents who are concerned (you learn later) but have not mentioned it; (3) parents who are surprised, dismayed, upset or angry when you describe your concern or raise questions about their child.

It is well to keep in mind that many if not most parents have mixed feelings about sending their young children to school. Some are afraid of teachers or authority figures out of their own past. Even when they are strongly positive and convinced of the school's benefits, they may feel quite vulnerable and anxious if things do not go perfectly. These concerns are heightened if their child is one with special needs. It is important to keep their sensitivity in mind.

On Referral: Preparation and Process

As a result of your contact with the child you may have identified some kind of developmental or behavioral difficulty and will have had an opportunity to work with him for a time. If not satisfied with the current picture, you will expect to talk with the parents, sharing your concerns and inviting information from them. Depending on the duration of the behavior and the parents' reaction to it, you and they may decide to work together on it for a time or you may want to suggest that they talk to their child's physician or other counselor about the problem. At their request or with their permission you may provide the physician or other clinician with the information about the child in school that will facilitate further evaluation. When the problem is more difficult or if it fails to yield to the above, referral to a person or a facility geared to the diagnosis and management of developmental and behavioral problem is usually indicated. An alternative step is, with parental permission, the utilization of a consultant who sees the child in the school setting. Some schools are fortunate enough to have such consultants available, but most do not. If you are instrumental in helping parents see the need for further help, you will want to have some information at least about local and regional resources. Having obtained such information you can pass it on to parents including how they might make contact with the person or clinic they choose. Whether you go beyond that communication to describe what the study in a particular place is like will have to be determined in each individual instance. It is always helpful to a clinic or other consultative resource to receive information from a child's teachers. Some parents are quite willing to give permission for an exchange of information. Others prefer to keep the school and clinic contacts quite separate or may wish to have only certain kinds of information exchanged and one must respect the parents' wishes. Not all of the information that is part of an evaluation by a mental health clinic, for example, is wanted or needed by the child's school. If exchange of information is possible, you are likely to get more useful information back from the clinic if in your referral you provide information that includes what your concerns are about the child; what data you have that illustrates or has given rise to those concerns; in what way an evaluation might assist you in your work with the child; what specific questions you have which, if answered, could be translated by you into specific recommendations about the program for this child in school (content, emphasis, etc.)

The Four-Year-Old Movement: Motivations, Outcomes and a Few Unanswered Questions

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This presentation escribes the findings from literature and observation to address the need for placement of four-year -olds in public schools in some kind of pre-kindergarten programs.and the need for these kinds of programs and the positive effects on children through being enrolled in such programs.

The place of four-year-old children in preschools is fast becoming a reality. Yet, for too long, the literature associated with this issue has made the mistake of confusing motivations with outcomes. It is imperative that research examine both the forces that are propelling this movement and the directions they are taking us in order for rational decisions to be made about the future educational options of our children.

My observations on these topics are addressed largely to the public school placement of four-year-olds. I think it is practical to make this emphasis, as it is in the public schools that we will find the majority of black children in the future. While my interest lies primarily with black children, my concerns are not far removed from those of concerned white parents as well. All parents should be asking the questions I will address in an effort to ensure responsible decision making for their children.

No one can doubt, upon reviewing the data, that there is indeed a four-year-old movement today in America. According to the Bureau of the Census, the percentage of three- and four-year-olds in preschool programs nearly doubled between 1970 to 1983, from 21 percent of all children to 38 percent of all children. In 1984, there were one million three-year-olds and 1.7 million four-year-olds enrolled in nursery schools. Public schools in over two-thirds of the states now offer some pre-kindergarten programs, and state funding for pre-kindergarten programs, independent of federal funding, is a growing phenomenon. In 1984-85, state-funded early childhood programs served about 172,000 preschool aged children, with total funding of $277 million. Early childhood education is big business, and, if you ever doubted that this movement was controversial, you need only consult the daily newspapers and news magazines to discover that we are standing in the middle of an emotionally charged issue. Let me share just a few of these headlines with you:

From The Washington Post:	PRESCHOOLS ACCUSED OF PUSHING TOTS TOO HARD
The Washington Post again:	TWO CLASSES OF CHILD CARE -- PROBLEM COULD TEAR NATION'S SOCIAL FABRIC, CRITICS CONTEND
From Education Week:	SCHOOLS GAINING IN COMPETITION TO SPONSOR EARLY CHILDHOOD PROGRAMS
From The New York Times:	EARLY SCHOOLING IS NOW THE RAGE
From USA Today:	PUBLIC-SCHOOL SITES FOR DAY CARE UNDER SCRUTINY
And from Education Week again:	CHILD CARE IN SCHOOLS MAY HARM BLACKS

That last citation was the result of a report released by the National Black Child Development Institute (NBCDI) in January of 1986. This report, entitled "Child Care in the Public Schools: Incubator for Inequality?" outlined NBCDI's concerns regarding the ability of the public schools to adapt various aspects of their curriculum and administration to the needs of very young children.

It is regrettably true that our report has further fanned the fires of controversy surrounding this issue, sparking additional articles in the national press. This cannot be avoided by any group seeking to question national policies. But it is my fervent hope that this report also has caused thoughtful people, academics and researchers among them, to re-examine the entire issue and to ask themselves: What are we doing? Why are we doing it? and Is it good for the children? Any thoughtful analysis of these questions should begin by examining motives. What is fueling the movement toward placing four-year-olds in the school system? The answers are numerous and complex.

Perhaps the most obvious reason for earlier preschool education relates to the need for reliable, affordable childcare by two-wage earner families or single parent households. The four-year-old movement owes a great deal to the women's movement. In 1980, there were only 1.6 million licensed day care slots -- private, public and commercial -- while 7 million preschool children had working mothers.

Yet, the need for child care is hardly a new phenomenon in the black community. Black women have historically worked outside the home. Whether as part of a two earner family or as sole providers in one parent households, the majority of black women have worked outside the home to raise their families. These women have always had to depend on outside care for their children. For the most part, black families have relied on relatives to care for their children. Almost half (44.9 percent) of black mothers with jobs outside the home still leave their preschool children with relatives.

That system is in the process of change. Young black women and their families are losing their traditional family support system for child care. Their mothers and grandmothers, the women who used to be babysitters, are now more likely to be in the paid workforce. So the question now arises in the black community, as in the white community: Who will mind the children?

It is logical for parents, and especially for black parents, to look to the public school as an answer to this question. Many of the qualities which have made public schools attractive sites for school age child care programs now make public schools attractive sites for preschool age children: many parents prefer to have all their children at the same location throughout the day; the cost is substantially less than private facilities; and the public schools have a reputation as a melting pot of social and ethnic differences.

Now, new forces make the public schools even more interested in attracting this new clientele. Declining enrollments among traditional age students and the threat that neighborhood schools will close have prompted many parents and principals to unite in their efforts to establish preschool programs. When teaching positions are earmarked for extinction, principals tend to reach out to this new population in need of tutoring. It does not take much imagination to conclude that preschool programs could indeed become the salvation of public schools threatened with closing by declining enrollments. It is not hard to imagine well-intentioned parents who seek to stabilize neighborhoods turning to preschool programs as a welcome panacea.

Another propelling force is the desire of parents to give their children an early start toward achievement. Today, parents see the enrollment of their child in a preschool program as the equivalent of the child's first step toward Harvard. Conversely, those parents who cannot afford to send their child or who do not choose to do so are regarded as impeding the developmental progress of their child.

Publicity about the benefits of exposure to quality early childhood education programs abounds. Most recently, the High/Scope Foundation Study, Changed Lives, has fueled this issue. The report's dramatic conclusions are that quality early childhood education for disadvantaged children makes for greater school success, greater socioeconomic success and greater social responsibility. Although some question whether generalized conclusions, such as reduced criminal behavior or fewer teen pregnancies, can be attributed to preschool experience, there is general consensus that participation in a quality early education program often leads to later educational achievement.

Black parents, like white parents, feel pressured into preschool programs by the threat that their children will lag behind those with preschool credentials. Black parents who desperately seek a route out of poverty for their children, as well as the more affluent, are especially susceptible to this promise. Yet, few have examined the difference between the kind of high quality early education program represented by the

High/Scope experiment and the nature of the programs to be provided their child in their local public schools.

These, then, are the primary forces fueling the movement toward preschool education: the needs of working mothers, the needs of school systems facing client shortages and the promise of achievement. Most people would agree that these are sound motivations. They are, however, based primarily upon expediency and good intentions rather than upon a solid research base. The question remains: does the solution -- placing four-year-olds in the school system -- meet our expectations? While we may be solving problems for working mothers and for undersubscribed school systems, are we heading our children toward achievement? For that must be the primary consideration: our children's achievement. How are we to judge whether the four-year-old movement is indeed a step toward achievement? How can we reassure ourselves that the public schools will develop the skills and techniques necessary to nurture black talent at its most fragile and formative stage? Or will public school-based child care programs adopt the methods and procedures of elementary education which have operated, in many cases, to segregate blacks and to label them as non-achievers?

There are a number of good reasons why black parents must question the public schools' promise of achievement. First, the public schools do not have an impressive track record in supporting the achievement of school-aged children. Today, 40 percent of minority youth are functionally illiterate. Black children are twice as likely as whites to be suspended from school or to suffer corporal punishment. Black children are three times as likely as whites to be placed in educable mentally retarded classes, where they make up 40 percent of all children. Finally, only 20 percent of black high school seniors go on to college. This is not an impressive foundation on which to build new programs for black pre-schoolers.

There are a number of other factors which stand in the way of a successful transition from the current scope of public school education to the inclusion of four-year-olds. First, the conflict between the traditions of early childhood education and those of public education are significant. Early childhood education has traditionally focused on the developmental needs of the child in the context of the social welfare of the family. By encouraging the involvement of parents and by reinforcing their central position in the child's life, traditional early childhood programs have always operated with a two client focus: the parent and the child. Yet, public schools traditionally focus on parents exclusively as agents to bring about a child's cooperation and socialization. Extensive family involvement is most often in direct opposition to public school procedures, despite its importance to the young child's development.

Second, current public school curriculum and teaching methods also conflict with those appropriate for very young children. Young children learn in context and in episodic fashion. Much depends on individual attention. As educator and NBCDI member Barbara Bowman has said, "In the first six years, children come to learning with a real inner drive to make sense of of the world and, in making sense out of the world, they learn to process information. What is important is that they achieve a balance between receiving information and constructing inner cognitive structures to handle that information, to make sense out of it. Young children need to receive their information in the context of how it is used." Yet, traditionally, public schools are structured primarily to impart information out of context: transmitting social content, values, and facts to children passively listening in large group settings. They are not set up to provide the young child with the opportunities to realize his or her developmental potential.

Another characteristic of public education procedure in conflict with early childhood development goals is its reliance on testing to classify children in groups. As bad as the effects of public schools' reliance on tests and tracking are for elementary school-age black children, they are worse for younger children. Preschoolers are too young to test reliably. Yet, group tests, rather than more individualized methods of evaluation, are universally used by public schools. Black families are already reeling under the negative impact of testing on their children. Who is to say that this movement toward early child care in the school will not simply serve to identify and isolate these so-called non-achievers at an even earlier age?

Still another public education characteristic in conflict with the best interests of young black children is the standard teacher education curriculum. Teacher training for public school certification is oriented toward older children and does not take account of preschoolers' different learning patterns and needs. Yet, economic pressure will surely exist to fill slots for early childhood programs with teachers holding tenure. These teachers may know little or nothing about the nature of their new charges. Moreover, despite the increasing

number of black children in the system and the young child's need to identify with his or her teacher, proportionally few teachers are likely to be black: less than 5 percent by 1990, researchers tell us. Clearly, we are on the horns of a dilemma. On the one hand, we need affordable, reliable child care. We want to give our children the best early start we can afford. On the other hand, we have some reason to suspect that the solution currently being offered may be far from ideal.

When NBCDI issued its report, it chose to issue at the same time a number of what we then called "safeguards." We urged the public schools to comply voluntarily with the basic criteria that ensure quality child care. These safeguards included: incorporating effective parent education programs; requiring teachers to have specific training in preschool education and/or ongoing inservice training provided weekly by qualified staff; and subjecting public school-based, early childhood programs to external review by community members and experts. The Institute viewed these safeguards as a beginning. They were our attempt to solve some immediate problems and to get schools and parents thinking and talking about what might constitute quality educational experience and environment for children. But the safeguards do not go far enough. Where we left off is where the new research must begin. In researching our report, we discovered that virtually no one was discussing the implications of the major change toward including four-year-olds in the traditional school curriculum. The Institute believes that we have yet to see the fundamental questions addressed by research. These questions are: Can public school-based, early childhood programs be adapted to meet black children's social and developmental needs? And, if so, what would it take to do this? In short, we need research-grounded answers to support our social priorities. We know the factors that contribute to high quality programs: low child to teacher ratios, developmentally appropriate curricula, parental involvement and well-prepared teachers, among others. The question then becomes: How can we translate what we know to those who are in charge of public school education?

We have learned from effective school research that there are factors that go beyond the basic teacher-child relationship to encompass characteristics of administrators and other critical areas of the learning environment. These factors become very important in considering the transition of an educational structure from its primary orientation toward serving older children to including preschoolers. While we have researched and demonstrated what can be done in quality early childhood experimental programs, how are we to transfer this knowledge in a way that can be endorsed and implemented by the public schools? It is not enough for researchers to concern ourselves with models and content. We must take the next step. We must take the critical issue of classroom implementation. In short, we must make it clear to those who must undertake the implementation how they are to transfer our findings into their settings. I believe this must be the chief challenge of researchers concerned with the four-year-old movement today. But there are other challenges as well.

First, research generally shows that young children need a free and open environment. This is a time when early learning should be more self-directed, more exploration than recitation. These needs, however, are in direct conflict with public school programs, which tend to be highly structured. Such programs teach the "form" of academic learning but often shut young children off from the content. How are we to accommodate the developmental needs of young children within the existing structure of the public school environment? This is a question for researchers.

Second, we know from numerous studies that children become interested in symbols and symbolic learning when it involves someone they love. Close, informal contact is conducive to their learning. How are we to provide this within the structure of today's urban public school? This, too, is a question for researchers.

Third, we are concerned by the growing body of evidence that points to a decline in performance after the third grade, even among those children who have had a quality preschool experience. What is happening to these children? Here again is a question for researchers: What can we do to help our children continue to excel?

And finally, a question which cuts to the heart of the educational process. Realizing that education does not happen solely in the schools, why can't we stimulate the parents of disadvantaged, low-income, minority children to become involved in the education of their children? These children must overcome the barriers if they are to succeed. They cannot receive quality care in the schools only to be undermined by a lack of interest or encouragement at home. What can we do to help parents help their children? Why is it that other

groups have been able to overcome poverty and to groom their children for achievement while black have not? Here indeed is a question suitable for research.

These are the challenges which face researchers interested in the four-year-old movement today. The movement, we all agree, is here to stay. Now we must direct our efforts toward getting the kind of movement we want. Model programs exist. In many areas, the research findings are clear. The hard work is how we translate what we know into those thousands of public schools around the country where our children are going to be taught. It is not enough for researchers to invent the ideals, we must stay involved through the practical applications of our research into classroom settings. If we do not, we will have only ourselves to blame when our children do not excel and we are told that they are getting a "quality" education. The public schools, far from being our enemies, must become our allies in an all-out battle for black achievement. That battle will only be won as parents, scholars and community leaders join forces to make our schools responsive to the documented developmental needs of all our children.

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Quandries in the Trend Toward Earlier Education: The Role of Research

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The presenter provides an reassessment of the values and goals of research, especially the relation between research and practice for four-year-olds. He further describes ways to improve the effectiveness of research in early childhood education and to arrive at a more realistic conception of the role of research.

I want to take this occasion, which is an inaugural, of sorts, of a new research center in early childhood education, to raise questions about the most productive role of research. Without quashing the enthusiasm that such an opportunity arouses, I would like to stir a reassessment of the values and goals of research, especially the relation between research and practice. Following this discussion of broad issues, I will turn more directly to the focus of this conference -- the education of four-year-olds -- by raising some questions that will illustrate the more general themes with which I will begin.

The first part of my paper deals with problematic features of research that reduce its effectiveness. The problems pertain both to the way in which research is carried out and the lack of connection between educational research and practice. These are interrelated issues; if the abyss between research and practice were to be bridged, it is likely that the manner in which we conduct research would also undergo change. My aims are both to improve the effectiveness of research in early childhood education and to arrive at a more realistic conception of the role of research.

Some Wayward Research Patterns

I start with the premise that educational practice currently derives slim benefits from the mass of ongoing research. According to my view, this state of affairs is partly attributable to the fact that researchers have adopted a set of strategies and outlooks that impair the effectiveness of their work, and partly attributable to the lack of close and effective working relationships between research and practice.

The Disparate Perspectives of Research and Practice

The relationship between research and practice varies widely, but more often than not research functions independently of the practitioner so as not to be constrained by the idiosyncratic characteristics of a specific situation. Moreover, since research is geared to study rather than to act, it adopts a distinctive pace, focus and method that will allow us to know and learn what we now incompletely understand. The researcher is free to fly high in order to command a wide perspective, then he or she zeroes in on what it has been decided to investigate. The teacher is seen as one of countless ant-like creatures on the ground whose vision is confined to the thorny human terrain of her particular classroom. On the other hand, it is the teacher who is up close and in constant touch with the phenomena, whereas the researcher's view tends to be remote and schematic.

I prefer to think of these two professional orientations as sharing a common ground; in effect, both the researcher and the practitioner are child psychologists. The teacher is an applied child psychologist. If the school is seen as a psychological field, the teacher is one who intervenes in support of the child's psychological growth and well-being. But because the educator must deal with the whole child while the researcher has the luxury of abstracting some facet of the totality of psychological functioning for systematic molecular study, they drift into different mappings of the same phenomena. This rift has adverse consequences for both parties. Researchers tend to generate less valid and theoretically meaningful knowledge, and their results tend to foster a confusing vision of the corpus of knowledge in child development, one that may hinder the work of the educator.

Several interrelated operational codes and philosophical outlooks contribute to the failure of research to realize its full potential. They are: the tendency to assume a reductionist posture, the worship of quantitative methods, the favored position of the experimental method, the persistent allegiance to nomothetic approaches to measurement and assessment, and the tradition of viewing research as a vehicle for verification rather than exploration.

The Irresistibility of Reductionism

To be drawn to reductionism is a natural but upending predilection most of us share. We have learned that one way to understand something is to reduce it to its elements and then to break it down still further as we redefine what are the basic elements in an unending path of microscopic analysis. This mode frequently works in the study of the physical sciences, but in other realms continued pulverization of the phenomena under study destroys their essence. In many spheres of psychological research it is vitally important to preserve the wholeness of the phenomena under study. While it is true that various components of psychological functioning become progressively more individuated, especially when we are dealing with the young child, it is the web of interconnectedness of behavior that we must master rather than the dissection of behavior into basic elements.

The Lure of Quantification

We continue to believe that something truly exists only if it can be measured. As a result, we wind up studying that which can be measured rather than that which we regard to be important. It is understandable that at any given moment we might feel more comfortable dealing with something that is measurable than something that is not, but the cumulative effect of acting on this preference has led to the gradual construction of a model of the psyche that is restricted to measurable constructs, a model that is as a consequence unnecessarily distorted and emaciated.

The Primacy of the Experimental Method

The quest for precision, exemplified by the emphasis on quantification, leads also to a preference for the experimental method as opposed to naturalistic observation. The experimental method produces results that are less ambiguous to interpret, but this approach introduces its own severe limitations. It confines us to only the comparative handful of facets of behavior that are quantifiable and amenable to experimental manipulation. It also exposes us to the risk that our experimental analysis will fail to simulate the phenomena we intend to study.

Eliminating Uncertainty vs. Deepening Understanding

The analytic mode in which researchers are trained provides skills in dissecting and tearing apart. Such skills fit the view of research as an enterprise geared toward nailing things down rather than opening things up. We tend to view research as a means of establishing certainty, as helping us to come to a definite conclusion about a relatively small matter rather than as a vehicle for broadening our vistas. We are more intent upon stamping out minor pockets of ambiguity, painfully difficult as this turns out to be, than on expanding our exposure to the complexity that inheres in human behavior. To increase the feeling of certainty is valued more than the act of uncovering.

Nomothetic vs. Idiographic Methods

A particularly troublesome factor, whose problematic features are not visible at first glance, is the tendency to adopt nomothetic methods of assessment, to use the same yardstick to measure all people. First it should be noted that our measuring instruments are not as stable and precise as a real yardstick. More important, this outlook prevents us from recognizing that it is only in the case of some people that it is their length, for example, that is salient. For others, it should be more relevant to assess their weight and for still others some other trait should be our target for assessment, such as their fearfulness or their vitality. Why not, then, obtain measures of all these traits nomothetically? It is possible to assess each person's length, weight, fearfulness and vitality. But we usually lack the time or money to gather so much data -- and it gets to be confusing. When we attempt to measure everyone with respect to everything, what really matters about each person gets lost. Further, most of our measures would drown in a sea of error under such

circumstances. Our ability to measure many traits varies according to their magnitude; we are more likely to achieve acceptable levels of precision when we confine our assessments to those manifestations of a trait that are prominent. So it is the quality of our measurements, as well as their clarity and salience, that suffers when we cling to nomothetic rather than idiographic forms of assessment.

The Divergent Paths of Research and Practice

Some of these misguided methodological orientations of research would change if researchers were more closely linked to the world of educational practice. If we listen to teachers of young children talk about the members of their class, they almost always speak about the whole child, not some fragment of his or her behavior. And when they use trait descriptions, their statements are idiographic rather than nomothetic. They tend to use different ideas and concepts to describe different children because the traits they cite are differentially salient in capturing the essential features of different children. As matters now stand, the practitioner seldom reaps great benefits from the mass of research that is being conducted, even though much of it is ostensibly aimed at generating useful information. And correspondingly, the validity of much research is impaired by the fact that it is so uninformed by the perspective and knowledge of the practitioner.

The Disorienting Impact of the Research Literature

Not only is the world of research less helpful to the educational practitioner than it might be, it may also, inadvertently, introduce an element of confusion. The enormous rise in the volume of research has led to a profusion of journals exclusively devoted to publishing research findings. For example, the rapidly growing, and by now voluminous, child development literature is dominated by reports of research. What appears in print about children are mostly descriptions of what child development researchers are grappling to understand at that moment. The sheer volume of current publications, and the tendency of child development researchers to confine their conversations to that which is currently being published, gives rise to the impression that the current literature embodies what is known and regarded to be important about the nature of children's development. In actuality, the research literature represents what is fashionable at the moment, and the level of analysis reflects the abstract, fragmented, measurement-oriented character of research.

For the practitioner to read this literature is to stand in shifting sand. It mitigates against building a stable set of ideas and priorities about children's development. When those who work with children, tired and in need of substenance after a hard day, decide to visit the nearest research restaurant, all they find in the menu is a listing of the catch of the day. Instead of shouting, "Where's the beef?", they shrink into their seats and murmur to themselves, "They must be eating bluefish these days." What are educators to think upon encountering this voluminous writing and discussion that is out of phase with what they are thinking about? They will either conclude that their own thinking is obsolete or flawed in some serious way or that the child development researcher is off the track.

I suspect that many teachers are left feeling inadequate and bewildered by the current literature and come to distrust their own knowledge and experience. It may induce an air of resignation and passivity that further impairs their effectiveness. As teachers lose faith in their ability to deal with the complexity they encounter, the researcher is called upon to devise teacher-proof methods of working with children, methods based on the assumption that the teacher's role must be bypassed -- an assumption that in my view is fundamentally untenable and will have disastrous consequences for children.

Instead of being relegated to the position of consumer of research, practitioners should be regarded as equal partners in the task of unravelling the mysteries of child development and effective education. They have continuing access to child behavior in all of its complexity. Researchers are better trained to think systematically about the phenomena encountered, but it is the practitioner who is forced to come to terms with a level of complexity that the researcher has the privilege of evading. By pooling their different but complementary skills, they would be in a stronger position to master the complexities of child development. But this means regarding the classroom as a central arena for learning about young children and early education and the teacher as a primary agent in the search for knowledge.

The Synthetic Role of Research and the Integrative Needs of Practice

At the same time that I am calling for a redirection of method and focus in early childhood educational research, we need to bear in mind that we do not lack essential knowledge of how to teach children effectively. A great deal is known about how young children should be educated. The problems lie in recruiting gifted teacher candidates, creating solid teacher training programs and helping teachers and schools to implement what is already known. One of the greatest needs is for the profession to be helped to use the knowledge that already exists -- to codify that knowledge in a way that makes it more useable and, after that, to expand it. Thus, an important role for research is to conduct comprehensive observation and analysis of ongoing exemplary educational programs. Such work requires having easy and full access to such programs.

Since the process of training is also greatly facilitated by the availability of demonstration schools, it would seem that both research and training should be quartered in facilities that can support an exemplary preschool program in which outstanding educational clinicians serve as teachers and also collaborate with and guide research. Although demonstration schools sometimes deteriorate into showy, glossy operations that are more precious than solid, there is a great need for professionally first-class programs that demonstrate what can be accomplished when full resources are available. The rhetoric of education fails to convey the complexity and subtlety of outstanding educational enactment; for many people it is essential to observe such phenomena in action in order to fully understand all that is entailed in such work.

In claiming that many of the elements of good teaching are known and that the challenge lies in providing the resources and the framework for orchestrating these elements and mounting an effective program, I would like to suggest that the task of educating the public is not so very different from that of feeding the public. We are inundated by fast food not because we don't know how to prepare good food but because the technical and organizational skill for delivering meals of high quality are not always available, and because we are not willing to pay the price for such services. But once a community has access to a good restaurant, and is able to support it financially, its very existence often raises tastes and expectations. The abstract knowledge for preparing good food already exists in cookbooks what is needed are the financial resources and the organizational framework and skills to assemble the necessary elements and put them into operation.

At the risk of overloading this tenuous analogy, I want to give my argument one more twist. I can envision that some people might protest: "Why are you so opposed to fast food? It represents the first time that many people have been able to eat out, and it frequently constitutes an improvement in the nutritive value of their dietary intake. If anything, we have to arrange for the spread of fast food eateries; as matters now stand, they are only available in densely populated areas." There may be some validity to such an argument, but I can only restate my conviction that something must be done to upgrade the level of the complex process of food preparation at the same time that it is being made available on an increasingly widespread basis, and that we need to maintain stellar forms of such operations or we will progressively lose sight of the quality that can be achieved. The rapid growth of early childhood education resembles the rapid growth of the fast food industry in that it is being increasingly called upon to deliver minimal services to more and more people. Nor can the situation be materially improved by investing in research that functions in isolation of the educator. A research center in early education will function more effectively if it operates within a system that serves as a model and a demonstration center and forms the base of collaborative studies with outstanding practicing educators.

Irreconcilable Aspects of the Relation Between Research and Practice

Having focused on issues that would make research in early childhood education more relevant and penetrating, partly by bringing about more symbiotic working relationships between research and practice, it is also necessary to recognize important elements of incompatibility between them. Educational research and practice, strangely, have agendas that clash. The researcher is ever alert to innovations and breakthroughs and is dedicated toward changing the structure of our knowledge. The educator, on the other hand, is devoted to maintaining and sustaining values and modes of the past. The dynamic, swiftly changing world of research is not very compatible with the necessarily conservative role of the educator. One of the most important themes to be introduced and maintained in a classroom for young children is a sense of order and continuity. Especially in today's rapidly changing world, it is vital for teachers to introduce a note of predictability and

stability, to always be there, and to offer a presence that is calm and dependable, and thereby, to help to create a place of anchorage. These values and experiences are needed by young children more than ever before.

Whereas teachers are mainly concerned with sifting through the voluminous literature in child development to find insightful descriptions of how children develop that will endure, researchers focus on what is new and promising and leave the question of ultimate usefulness to others. This is an important dimension of difference between the worlds of research and educational practice that contributes to their alienation. As our insatiable appetites for novelty and change undergo a continuous rise, the researcher is in an ascendant position. There is little incentive for researchers to retreat from or even modulate this mode, and educators cannot abandon their posture of conservatism without betraying their calling. This is a dilemma whose ramifications need to be further explored.

Final Comments on the Role of Research

I have suggested that research has not played a very supportive role in early childhood education and have outlined a number of ways in which research might generate more relevant and valid knowledge. One way to redirect its path is to achieve a more closely-linked working relationship between research and practice. Also needed are ways to distill those research findings that are of relevance to the educator, so that the educator can be apprised of new trends of thought without being distracted from the very durable and complex phenomena of the classroom. The idea that the main job of research is to unearth facts seems misguided; it would be better if researchers ceased to invest so much of their effort to achieving this rarely attained and general overvalued goal. Finally, we tend to underestimate the heuristic value of research, the manner in which research, by the nature of its analytic thrust and its endlessly skeptical entertainment of alternative hypotheses, tends to deepen our understanding of complexity.

An important way in which research can help to facilitate the work of the educator is to describe and analyze what actually transpires in the classroom, especially the exemplary classroom.

On Universal Education for Four-Year-Olds

In confronting the question of universal education for four-year-olds, among the questions that arise are: What is at stake in moving in this direction? Why haven't we done so before and why are we doing so now? And if there were good reasons for not having done it in the past, what has changed to make it appropriate to do now? Are there research findings that might guide what and how we should teach four-year-olds? And finally, how can we tell if a program is effective?

The Changing Face of Preschool Education

If there is an unarguable issue in all of this it is that attitudes toward preschool education have undergone a dramatic change. In part, we are dealing with an idea whose time has come. There has been a steady rise in preschool education for the past several decades, a rise that was spearheaded by the Head Start Program, which finally made preschool education, both visible and available to the less privileged sectors of our society.

In the past, preschool programs for four-year-olds were a frill, delivered in small doses for children in privileged families. Their child-centered mothers had sought out an opportunity for them to participate in group activities and to begin friendships under the benign and well-equipped framework of a nursery school. Now, preschool programs have become a major multifaceted resource for families of the poor, families that are usually larger and, therefore busier, more economically burdened and, therefore, frequently less well-equipped to provide a stimulating, growth-supporting environment for the four-year-old at home. In effect, their availability to families in the inner city and other economically deprived areas have helped to transform preschool programs from highly desirable to indispensable commodities.

Many other factors have influenced this trend. The well-educated and sophisticated middle-class mothers who had been the main clients of preschool programs in the past harbored higher protective attitudes toward their children, including the idea that time spent away from the safety of the home was in and of itself stressful and should, therefore, be carefully measured and regulated. However, shifts in the structure of

society, in the quality of public safety, and in the intrusiveness of other forces brought about by television and other innovations, have changed people's attitudes about the feasibility and even of the desirability of providing a cocoon-like atmosphere for the young child. Moreover, the diminishing size of families along with the widespread move to the surburbs, have left families more isolated and their children with fewer playmates, thereby making the opportunity for children to find friends and social stimulation in preschool even more desirable.

But above all, the changing attitudes of women toward going to work outside of the home while their children are still young, attitudes that have been shaped by a powerful coalition of forces -- ideological considerations stemming from the women's movement, and financial pressures brought on by a depressed economy and by the rapid rise of divorce and the changing demography of young mothers: the combined impact of these forces have served to make preschool programs, including day care, almost a necessity.

There have also been intimations that children are growing up faster (Elkind, 1981: Zimiles, 1986a), whether it is the improved nutrition and medical care or the heightened stimulation provided by television, the amazing array of toys now available and other media. Thus, it has seemed to many that the apparent greater knowledge and awareness of today's children together with signs of their social precocity have rendered the four-year-old more ready than in the past to benefit from preschool and to be less vulnerable to the stresses of being away from home for long periods -- especially, of course, if the mother is not going to be home anyway. There is small wonder, when one considers this litany of social, technological and psychological change, that we are on the eve of advocating universal education for four-year-olds.

Of course, an important difference between what obtains at present and what transpired previously is that the preschool programs for which there is now public support are for all of the children, whereas the preschools of yesterday served mainly those from privileged families. What has also changed is the degree of commitment of government and society to help those children at risk, children whose families have suffered from adversity to a degree that the development of their children is imperiled. And above all, what has changed is not only the demography of mothers (so that not only is our government now committed to helping mothers in need but a larger proportion of mothers are in need), but the willingness of virtually all mothers to stay home and serve as the primary caretaker of their children. In providing new resources and alternatives for the care of <u>some</u> children, we have changed the options and opportunities available to mothers of <u>all</u> children.

Virtually no one doubts the value of early education for four-year-olds when the program is of high quality (though there is not universal agreement about what constitutes a program of high quality). However, given the intricacy of educating young children, the limited availability of outstanding teacher training resources, and the declining appeal of early education as a career, few programs are staffed in a manner that enables them to realize the full potential of early education. Therefore, when faced with the choice between the preschool program available to them and remaining at home, in the case of many children it is not at all clear which alternative arrangement would best support their development. So that when we are asked, and we ask ourselves, "Is it better for a four-year-old to be at home or in school?", we have to ask ourselves, "Which child, from which family and which school would he or she have an opportunity to attend?"

Although most four-year-olds would benefit from attending preschool, there are undoubtedly some children who would be better off at home -- because they are not emotionally ready to be away from home for substantial periods of time, or because their mothers provide a more emotionally supportive and more intellectually stimulating environment than that which would be provided by the particular school they would otherwise attend. On the other hand, there are large numbers of children, today, for whom an alternative to be cared for by their mothers in their homes must be found--either because their mothers are too ill or emotionally unstable to take care of them, or because their mothers must work, or because their mothers prefer to work, and increasingly, because their mothers have decided that they would prefer not to be saddled with the joy of primary caretaking either because they would rather do something else or she does not think that they are particularly good at it.

It is abundantly clear that the more available we make alternatives to childcare at home with the mother as the primary caretaker, the more often will these alternatives be chosen. In sum, there has been a dynamism of change that has affected virtually every aspect of the forces that bear on the issue of whether

four-year-olds should go to school. What is different is not merely that now, at long last, the powers that be are willing to support universal preschool education. What it means to go to preschool and what it means for a child to stay home and what it means for a mother to stay home is changing--even as we talk about it.

Some Unresolved Issues

Despite the rapid currents of social change, there are issues that have been raised in the past that may still be relevant. Among them are questions pertaining to what it was that was good about a child being cared for at home that might now be lost, and others that raise concern about sending a young child to spend a sizeable portion of the day away from home. It is easy to gloss over these questions in the euphoria of achieving such widespread acceptance and support for early education, to assume that our concerns and misgivings of the past have been blown away and made irrelevant by the current whirlwind of change.

The Cognitive Environment of the Home

A recent study conducted in England by Tizard and Hughes (1984), who compared observations of children's language behavior at home and in preschool, helps to remind us of what we may well forget these days. For the purposes of this discussion, I ignore the authors' interest in social class differences. Their report calls attention to the depth and complexity of learning that takes place at home, to the great scope, intimacy and informativeness of mother-child conversations. In discussing the unique features and specific strengths of the home learning environment, the authors point to the vast range of learning that takes place at home as compared with the somewhat circumscribed agenda of interchanges in school. Parent and child have a life in common and therefore share common experiences and frame of reference that enable them to consider events and ideas that could not otherwise be entertained. Other contributing factors are the greater intimacy and individuality of conversations at home stemming from the fact that the learning environment of the home is embedded in contexts of greater personal meaning, as well as the more intense quality of the interactions between mother and child because of the affective bond between them. In the handful of preschools visited by the authors in London, where the study took place, the adult conversational input seemed diluted and trivial in comparison with what they observed at home among the mothers and children who agreed to participate in their study.

In thinking about these findings, apart from the issue of the selectivity of the sample that raises questions about the generality of the results, we need also to bear in mind that home and school environments need not be pitted against each other and should better be thought of as supplementing each other. At the same time, the results serve as an important reminder to those of us who have been quick to dismiss and/or forget the nature and value of the homelife of young children, a home life that is rapidly being attenuated and transformed.

The Influence of Maternal Separation on Children

Another issue which used to be raised in what now seems to be the distant past is the emotional stress that young children were thought to experience when they are dislocated, and, in particular, when they are asked to separate from their primary caretaker and their home environment, and, in addition, asked to live together with other agemates. This issue looms less large today for a variety of reasons: young children seem to be accelerated in their development so that they seem to be more able to cope with separation; we tend not to adopt as protective an attitude toward our young as we used to -- partly because it is more difficult to achieve the same level of protection and insulation that could have been achieved years back, and partly because we have revised our notions about how useful it is in the long run to afford such protection. We value independence more than in the past, are more impressed by the adaptive capacities of young children and see greater benefits accruing to risk-taking than we did in the past.

These considerations notwithstanding, there are still grounds for concern about the stress and tension that many young children will experience when asked to fend for themselves in a new environment. An important issue is whether the defensive reactions adopted by young children in coping with the perceived stress produced by the preschool environment and the separation that it entails will have enduring consequences that will be costly over the long run (Fraiberg, 1977). The anxieties experienced by young children are more difficult for them to understand and therefore to control, and therefore they are likely to be more enduring in their ramifications (Bowlby, 1969; 1973).

Another Hypothesis Regarding the Effects of Maternal Separation

Apart from the very important issue of what it means for children to be separated from their mothers at an earlier age, I believe that we must be concerned also about what it means for mothers to be spared the obligation to care for their children. Some clinicians report that they observe a growing tendency toward the abnegation of parental responsibility and nurturance. We need to ask whether the increasing provision of substitute care for younger children will contribute to a decline in the commitment to parenting. In providing alternative forms of child care for younger children, are we helping or hindering the parent-child relationship over the long run? Does provision of alternative forms of child care permit mothers to care for their children more effectively and more satisfyingly (to both parent and child?) or do these alternative arrangements contribute to the progressive erosion of the commitment to parenting?

There is no doubt that many young children not only survive but flourish in spite of, or perhaps even because of, the enforced partial separation from their mothers. Many mothers know how to compensate for the time lost because of activities that take them away from their children, and others are simply better mothers for the opportunity to do other things and/or for being relieved of some of their childcare responsibilities. But in the past, their alterations in parental roles have proceeded selectively and voluntarily. What is different now is that they are now being instituted on a large-scale basis and will soon become the norm.

Some Implications of Recent Studies of Cognitive Development

If all four-year-olds will be going to school, how should they be taught? Especially relevant are recent studies aimed at identifying the nature of cognitive abilities among three- and four-year-olds. It was Piaget (1952; 1969) who first provided a theoretical framework for looking at cognitive functioning in young children that resonated with the impressions of those had who worked with children and knew them in depth. Emphasizing the vigor of cognitive growth from the earliest moments of life and the power of active (rather than passive, receptive modes of knowing) exploration of the environment as the primary mechanism for structuring and restructuring knowledge, Piaget called attention to the distinctive modes and powerful dynamics of cognitive functioning in early childhood. He made it possible for psychologists to investigate and speculate about the kinds of ideas and conceptions of reality that children entertained at different developmental stages. It was through the force of his work that prohibitions were finally dropped against speculating about the unseen inner psychological framework that give organization to behavior. Prior to the widespread acceptance of his work a couple of decades ago, we were witness to how the research world, with its singular concern for rigorous verification, can envelope itself in so restrictive a methodological code that it is blinded from a reality to which thoughtful practitioners have thorough access.

Cognitive Skill and Cognitive Stimulation

But groundbreaking and illuminating as Piaget's explorations were, they inevitably contained serious gaps along with observations that have come to be questioned. Among them was the tendency to gloss over the conceptual skills of the preschool child. Cognition in the preschool child was described by Piaget mainly in terms of its deficiencies in relation to the skills that emerged in the next stage, as a valley that helped to highlight the mountainous achievements of the neighboring period of concrete operations. Some of the most productive energy of recent research in cognitive development has been directed at identifying the cognitive skills of the preschool child. Psycholinquists have shown that embodied in the everyday language of young children, an ability that we have always taken for granted, is a level of mastery of syntactic principles and symbolic representation that bespeaks a level of cognitive mastery and organization that surpasses anything we have previously attributed to the young child (DeVilliers & DeVilliers, 1978).

Other findings come from studies that challenge Piaget's theoretical premise that there exist qualitatively different stages of cognitive functioning which mark sharp distinctions between the cognitive functioning of preschoolers and those of the succeeding developmental stage (Gelman and Gallistel, 1978; and Wellman, 1977). Some of these new demonstrations of previously unobserved (by researchers) cognitive capabilities in young children have been achieved by rephrasing questions posed to children, and by couching the conceptual task that is to be performed within a framework that is meaningful and understandable to the young child. These have been noteworthy advances, but they entail an understanding of how children

function long known to capable and experienced teachers of young children. It is another instance in which research would have progressed more rapidly if it had been conducted collaboratively with the practitioner.

These new findings help to fill gaps in the canvas that portrays the nature of cognitive development. They remind us of the formidable cognitive skills that are at least nascent in the young child once we know how to call them forth. There is the danger that these findings will be used as a basis for accelerating the education of young children. There are already disturbing signs that many parents have become extraordinarily ambitious about launching the academic careers of their children at younger and younger ages, and thereby provide an early thrust into the orbit of fame and fortune. These new demonstrations of what preschool children can understand and accomplish may well be used to argue that serious academic instruction can be begun at progressively earlier ages. Since we are about to take a long trip, let's start at the crack of dawn rather than waiting until after breakfast. In that way we will reach our destination earlier and gain valuable time, so the argument goes. But if the driver is less ready to begin so arduous a journey so early, fatigue and disheartenment with the entire venture are likely to set in, thereby undermining the effort to achieve greater efficiency.

Given how long life is, I am puzzled by this obsession with getting children going earlier and earlier. Clearly what matters in the beginning is strengthening children for the long haul. Young children need a sustained tranquil period in a stimulating environment during which time they can develop powerful roots, and be helped to develop a view of themselves as effective learners. These goals are less likely to be achieved when learning is imposed from without and at a time when the child may be ill-prepared to respond to such demands.

Some of the impetus for instituting hard-nosed instruction in preschool programs stems from the behavioristic heritage of American psychology. Among the most entrenched of such derivatives of behavioristic thinking is the continuing fascination with the concept of training. We cling to the idea that important change in psychological organization can be instituted by implanting the desired behavior patterns, as if the psychological fabric were reinforcement contingencies. Educators are increasingly being invited to adopt curricula that foster such profoundly complicated behaviors as social skills or creative thinking as if we are dealing with commodities that can be stamped in and then bottled. Some believe that children need only to be trained to emit some of the behaviors associated with a particular pattern, like Eliza Doolittle in Pygmalion, in order to be judged as having undergone an important psychological transformation. Everything rests with the appearance of things to those who are unwilling to speculate about that which lies behind what is directly observable.

The emphasis on training tends to focus on the job to be done and on the children who will be doing it -- and their overriding need to understand better and come to terms with the world that is unfolding before them. Yet, it is also important for children to learn that learning involves work and that at school you learn to work at things -- but that is very different from sending out the message that there is a specific job to be done -- and focusing on the job rather than on the child. Because it is answerable, researchers are drawn to the question of whether "the job" is getting done, and then later on how it can get done more effectively.

In designing a school for a four-year-old, we need to find ways to have children engaged, not managed, and not simply diverted. Or else what children will mainly learn is how to respond to a managing person, or they will begin to think of school as a place where you idly spend your time amid friends and peers in an atmosphere of annoying but tolerable restraint. At the same time, if preschool is to become universally available, there is a danger in the aimlessness of preschool life -- that it will establish a pattern that will be continued. And there is an equal danger that the only way the teacher will know how to interrupt these patterns of budding aimlessness is to institute a structured curriculum and a didactic, managing posture that persuades children that school is boring and a drag, something to put up with and comply with, and also that school is a place where you are managed, that growing up means advancing through a series of hoops through which you are asked to jump.

A Study of Children in School

It is rare to find research that uses the child in school rather than a task to be learned as its starting point and which then proceeds to study children idiographically rather than nomothetically. For this reason, a new book by Bussis, Chittenden, Amarel and Klausner (1985) deserves special mention. It reports the results of a longitudinal study of the beginnings of reading. The study was restricted to 40 children in several different schools who were observed intensively in a multiplicity of activities that were seen as contributing to the development of reading. In attempting to arrive at a comprehensive understanding of the cognitive characteristics of each of the children, the study highlights the diversity of pathways to the mastery of reading. The authors also posit some cognitive styles that they associate with the acquisition of reading skills -- that is, differences in patterns of cognitive functioning that can be described qualitatively rather than quantitatively. In posting this hypothesis regarding stylistic variations in which children address the task of reading and its cognitive precursors (and it is their understanding of the wide range of skills and experiences that feed into the learning of reading which is most impressive), they do not attempt to pigeon-hole all children into this new framework. Rather, these styles are seen as salient for describing some children but not others. Had they adopted a nomothetic stance, these very interesting patterns would not have been discovered.

The Life Span Perspective

Some research findings in cognitive development that have relevance both for practice and research in early childhood education come from an unlikely source -- the new field of life span development. It is when we turn to the task of assessing cognitive functioning during adulthood and old age that we can no longer brush aside the limitations of nomothetic methods. It becomes apparent that adults assign meaning to different aspects of the same experience, and, in turn, that differences in life experience bring about different cognitive skills and funds of knowledge. For example, the same test cannot be used to obtain meaningful cognitive assessments of a carpenter, an insurance salesman and a pianist, all of who have worked at their occupations for over 40 years. The need for studying individual trajectories of development becomes apparent when studying the psychology of aging (Baltes, et al, 1984). I maintain that this perspective needs to be invoked throughout the life span.

Research in aging is, of course, an occasion for studying the long-term impact of various psychological-influences. It calls to mind rather graphically the phrase "education for life" and thereby reminds us that strategies for teaching children at various ages need to be examined in terms of their potential long-term impact and not merely in relation to how they prepare the child for reaching the next step in the educational ladder. In studying an older individual, we cannot help but ask ourselves, "What has this person made of life?" It is not inappropriate to view four-year-olds, also, as being in the early stages of making something of life.

Evaluating the Effects of Preschools

The effects of preschool education may be expected to extend over a wide range of areas of psychological development, depending upon the characteristics of a particular program and how it influences an individual child. Current methods of assessing preschool impact are not sufficiently precise and are too circumscribed in scope to provide a comprehensive and definitive evaluation of the impact of preschool experience (Zimiles, 1986b and 1986c). Our most useful analyses of the effectiveness of preschool education are likely to come not from testing programs, but from detailed study of a given preschool environment and intensive observation of children's response to that environment.

In addition to their lack of precision, it should be noted that there is a bias introduced by the testing procedures that are customarily used to assess the impact of preschool education. By virtue of the fact that such methods call for the child to be questioned by a strange adult, they are likely to favor children who have attended preschools as opposed to those who have not and to favor those who have attended highly structured and didactic programs as opposed to classrooms that are more informal and relaxed. This bias introduces a spurious element to the sizeable pool of error with which systematic efforts to evaluate preschool experience must contend.

On the Role of Early Experience

In the light of recent efforts to disabuse us of this fact, it seems necessary in concluding this talk, to reassert that early, formative years of life are profoundly important. Few reasonable people boldly claim that the effect of the first few years of life are irreversible, but there are solid grounds for believing that they constitute the foundation of ensuring years of growth and development. Their long-term influence derives from the fact that early childhood is a period of great vulnerability and a time of lesser control over one's environment. Because young children are less able to clearly differentiate and to code in language the nature of their distress, their response to stress tends to be more global and their interpretation of its causes is less amenable to reassessment and self-correction at a later point in time. The early years set in motion a vision of the world and a pattern of expectancies that affect how subsequent events are experienced and assimilated.

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